FLEET OPERATORS' REFERENCE ANNUAL

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# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

APRIL 1948

**News of fast, low-cost fleet maintenance: Pgs. 30-31**

REO engine accessibility speeds service and maintenance jobs. Exclusive REO More-Load design cuts inches off the wheelbase—you get a *full payload* in a more compact unit. More-Load design provides easier maneuverability—an important time-saving factor.

Check REO trucks, feature for feature, and you'll see why major operators are changing to REO—"The Truck of Champions." Reo Motors, Inc., Lansing 20, Mich.

REO

*Shown: REO Models C-25, C-22 and Custom Safety School Bus*

# Only Dodge gives so much

## VISION...

*New* Dodge "Pilot-House" cabs give you nearly 200 square inches more windshield area than other standard truck cabs! You get tremendously increased vision... in *all* directions. Windshields and windows are higher and wider. Available are new rear quarter windows that add still more to vision, and to safety . . . and vent wings on the door windows for controlled ventilation.

## COMFORT...

Comfort? Riding is believing! New and *better* weight distribution, wider tread axles and longer springs give a marvelous new "cushioned ride." "Air-O-Ride" seats give the kind of seat cushion you want—"soft," "medium," or "firm," controlled by a convenient lever. Seven full inches of seat adjustment provide exactly the right legroom. *All-season* comfort is yours, too, with "All-Weather Ventilation," an ingenious combination of truck heater, defroster vents, vent wings, and fresh air intake.

1 **PLENTY OF HEADROOM**

2 **STEERING WHEEL** right in the driver's lap.

3 **NATURAL BACK SUPPORT** . . . adjustable for maximum comfort.

4 **PROPER LEG SUPPORT** . . . under the knees where you need it.

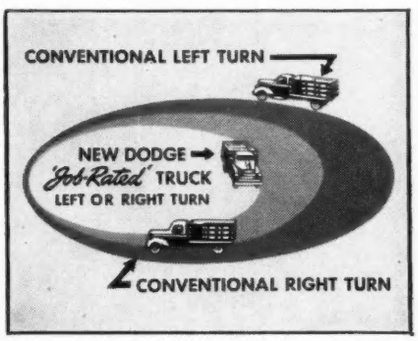
5 **CHAIR-HEIGHT SEATS** . . . just like you have at home.

6 **7-INCH SEAT ADJUSTMENT** . . . with safe, convenient hand control.

7 **"AIR-O-RIDE" CUSHIONS** . . . adjustable to weight of driver and road conditions.

## EASE OF HANDLING

You can turn these new "*Job-Rated*" trucks in much smaller circles. You can park, back into alleys or up to loading platforms with much greater ease. This is due to a new type of steering design, with shorter wheelbases, that accommodate full-size bodies. You get much better weight distribution, too. Front axles have been moved back and engines forward, placing more weight on the front axle.




You get a truck that fits *your* job—saves *you* money . . . because every unit of every Dodge truck, from engine to rear axle, is "*Job-Rated*" for economy, dependability, performance, and long life. And remember . . .

**only Dodge builds "Job-Rated" trucks!**

# NEW DODGE "Job-Rated" TRUCKS

FIT THE JOB... LAST LONGER

# COMMERCIAL CAR JOURNAL

*with which is combined Operation & Maintenance*

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1½ Ton SWB. Model 47-7 Hoist and 8' Type BR Body, 2½-3 cu. yd.

1948 trucks carry heavier payloads, do more business in fewer trips.

1½ Ton SWB. Model 36-7 Hoist and 8' Type BR Body, 3 cu. yd. ½ cab shield, optional.

**St.Paul**

Dump Units match all truck makes and models, deliver their loads faithfully and earn more for you.

2 Ton SWB. Model 47 Hoist and 8' Type BR Body, 4-5 cu. yd.

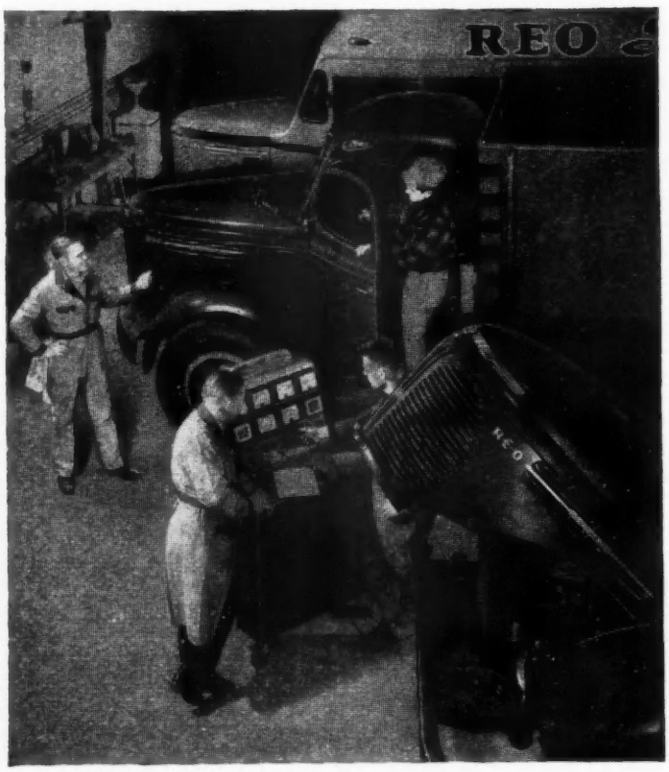
2½ Ton LWB. Model 53 Hoist and 10' Type BR Body, 4-5 cu. yd. ½ cab shield, optional.

3 Ton MWB. Model 7 Hoist and Heavy Duty 9' Type 654 Body with ½ hinged sides. 5 cu. yd capacity.

**ST.PAUL HYDRAULIC HOIST DIVISION**
GAR WOOD INDUSTRIES, INC.
2207 University Ave. S. E. • Minneapolis 14, Minn.

# How to slash hours off truck

## What to look for in a truck to get more hours on the road




*Three easy-to-service members of the REO family in for a quick check-up. In foreground, REO Model 25 with 66000 lb. G.V.W. capacity. Center, REO Model 22 with 22000 lb. G.V.W. REO Safety School Bus in background.*

*A. C. Scott, President of George F. Alger Company, with two of his drivers who piloted REO More-Load design trucks to winning positions in the A.T.A. Truck Roadeo in Los Angeles. REO truck owners get more profit-earning time on road.*

"TO BUILD A TRUCK to satisfy most operators is very difficult," A. C. Scott, President of the George F. Alger Company, said in a recently published article. "But if a truck is produced that has *accessibility* along with reliability, you'll have a truck that smart operators will demand and specify most of the time."

"How true, Mr. Scott," you'll say. "But where can such a truck be found?"

Looking over the many makes of trucks it is readily seen that very few fit the *ideal* trucking requirements. But one make of truck is engineered and built to fill every fleet's needs—for engine accessibility, short wheelbase, easy maneuverability with full payload, driver comfort and low-cost operation.

That truck is a REO—made by Reo Motors, Inc., Lansing, Mich.

Take a look at REO's exclusive More-Load design, for instance. Here buyers get a truck with a shorter wheelbase that carries a *full payload* in a more compact unit.

Then there's the REO cowl-hinged hood that opens like an alligator's jaws. Mechanics have plenty of elbow room to reach the REO Gold Crown Engine without removing fenders.

The third, and probably least known of REO truck features, is their finely balanced weight distribution. This master stroke of far-sighted engineering by REO results in a smoother, more comfortable ride—for both driver and freight load!

Where do *you* stand in the trucking picture?

Are you, as an operator, working overtime to get business just to see the profits go down the drain in outrageous service and maintenance costs?

Why not check the following points on your present equipment and see how much time and money is being wasted on slow, profit-eating repairs:

**Just check these vital points!**

1. **Remove and replace radiator.**
2. **Remove engine cylinder heads.**
3. **Remove old and install new timing chain.**
4. **Remove and install cylinder gaskets, check timing and put truck on the road.**
5. **Grind valves, remove carbon, reface cylinder-block valve seats, reface valves and put on the road.**

# service and maintenance jobs

6. Install new pistons and new piston rings.
7. Adjust brakes and bleed brake lines.
8. Remove cylinder head, install new head gaskets, clean spark plugs, check timing.

Now, call on your local REO dealer. Compare the same jobs on REO trucks. Minute for minute, hour for hour, dollar for dollar—you'll be very much surprised at how fast REO trucks can be serviced—how much extra time you get on the road!

Why can REO alone build trucks that are so easy to service and maintain?

What's the reason?

Mainly, it is found in truck-building experience and the exceptionally close cooperation between REO engineers and truck users. Proof of this is borne out by A.T.A. National Truck Roadeo results. There, all first and second place winners drove REO trucks—and a score of State Roadeo winners chose REO above all other makes.

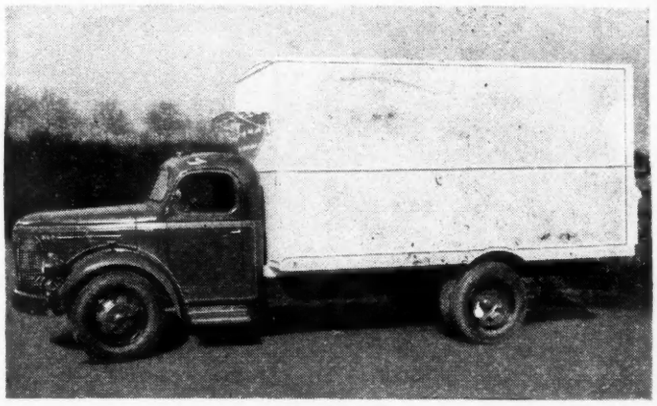
Another outstanding service REO renders truck buyers, is the way they price their trucks. No matter what the model, from the smallest Model 19 to the largest Model 30-31, the list price of a REO includes, as standard equipment, items usually billed as "extras" by other truck builders.

REO's basic price includes all equipment and accessories usually required by truck operators (except licenses, spare tire and body). It's a sound solid price for a truck ready to roll.

★ ★ ★

There's a moral to this story for wise truck buyers everywhere: no matter what the job to be done—CHECK REO BEFORE YOU ORDER ANY TRUCK! Reo Motors, Inc., Lansing 20, Michigan.

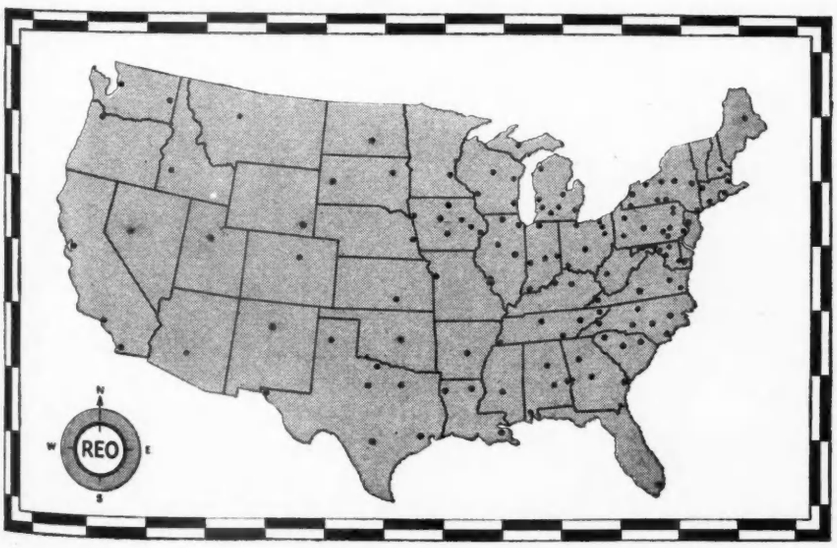
***"THE TRUCK OF CHAMPIONS"***



***Try this test on your present equipment! Simulate a breakdown a mile from the shop. Then send out a mechanic. Check his time. Compare with REO. REO engine accessibility gives the mechanic and operator a break—keeps shop time down.***

Check this chart of common breakdown points on trucks! Where does your present equipment stand on the list? Check the accessibility of these points on REO against any truck on the road. You'll find costs are cut by REO design.

| ITEMS | |
|---|---|
| RADIATOR | OIL FILTER |
| RADIATOR MOUNTINGS | CARBURETOR AND AIR CLEANER |
| FAN BELT DRIVE | |
| GENERATOR | DISTRIBUTOR |
| VOLTAGE REGULATOR | MOTOR MOUNTS |
| STARTER | COMPRESSOR MOUNTINGS |
| FUEL PUMP | EXHAUST MANIFOLD GASKETS |




***Wherever you go there's a REO outlet to care for your trucking needs. Highways are dotted with REO dealers, distributors and factory branches stocked with genuine REO parts. REO mechanics are qualified to handle any emergency. Map shows key REO sales and service outlets — these are supplemented by hundreds of REO dealers.***

**REO**

REO MOTORS, INC., LANSING 20, MICH.

# UNCHALLENGED 10-YEAR LEADER

## Always far in advance of the field

## *The* INTERNATIONAL METRO

**THE PIONEER, ALL-STEEL, EXTRA-CAPACITY MULTI-STOP, LIGHT-DELIVERY TRUCK**

Ten years of extra profit-making is the impressive record of the International-Metro Truck—and for all classes of business that deliver light, bulky packages on multi-stop routes.

Drivers and owners themselves tell how economical the International-Metro is to operate—how much extra load it carries—how easy it is to load and unload—how responsive it is in traffic—how quick to start and stop—how much extra work it enables drivers to do—and how fresh it leaves drivers at the end of the day.

These same drivers and owners tell how easy the International-Metro is to service—how readily replacement parts and units are available when they are needed.

This dominant success in the motor truck industry—*pioneered by International and built only by International*—today presents 10 years of constantly improved design, construction and performance.

For details, see your International Dealer or Branch.

*Motor Truck Division*
**INTERNATIONAL HARVESTER COMPANY · Chicago**

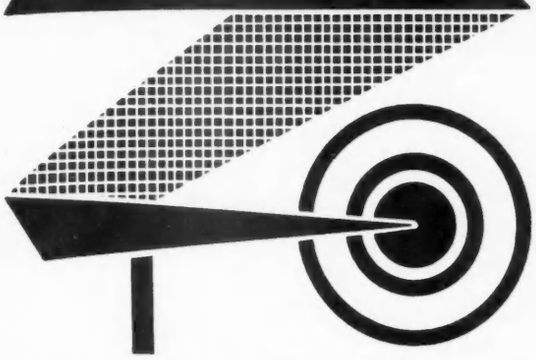
**INTERNATIONAL-METRO TRUCKS** are two of the 22 models in the complete International Line, which includes everything from half-ton pickup trucks to off-highway vehicles with a gross weight rating of 90,000 lbs.

*Tune in James Melton on "Harvest of Stars" CBS Wednesday Night*

THIS EMBLEM IDENTIFIES GREAT TRUCKS
INTERNATIONAL

# INTERNATIONAL *Trucks*

COMMERCIAL CAR JOURNAL



# 1948 FLEET OPERATORS' REFERENCE ANNUAL

THIS is the Twelfth Edition of The Fleet Operators' Reference Annual -- probably the most interesting and valuable compiled to date by COMMERCIAL CAR JOURNAL. It has been expanded with valuable and practical information compiled not only for immediate use, but throughout the year. The Service Data Section, for example, has been expanded by the addition of several makes of trucks and engines, and such valuable reference data as the Table of Component Parts, PM Routines, and a comprehensive Trouble Shooting Guide. Similarly, new information will be found in every section of this issue. The editors wish to acknowledge the aid of factory service men.

VOL. LXXV APRIL 1948 NO. 2

## SECTION I

Tune-Up Data, Front-End Alignment Specifications, Tension Specifications, Valve Spring Lengths and Pressures, Engine and Chassis Lubricant Specifications and Capacities, Cooling System Capacities, and Battery Data are grouped according to the particular make of truck upon which such service work is to be done. An index of truck makes is given below.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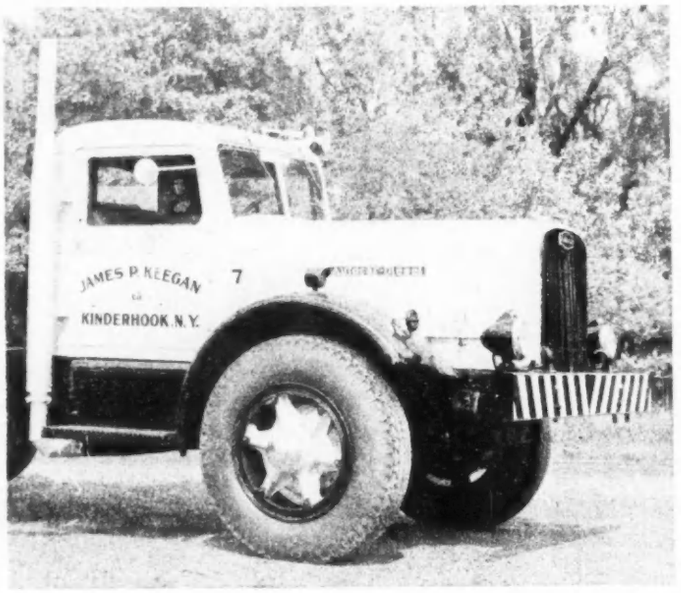
# AUTOCAR

## 50, 70, 70S, 90, D100, D100N Series

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59




## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| C50, C50T, U50, U50T (1945-48) | 10 | 14 | 20 | 27 |
| C50D (1946-48) | 10 | 14 | 20 | 27 |
| C5064 (1946-48) | 10 | 14 | 12 FA | 27 |
| C70, C70T (1945-48) | 12 | 18 | 20 | 34 |
| U70, U70T (1945-48) | 12 | 18 | 20 | 38 |
| C70S, C70TS (1945-48) | 12 | 18 | 18 | 33 |
| U70S, U70TS (1945-48) | 12 | 18 | 18 | 38 |
| C70D (1946-48) | 12 | 18 | 20 | 34 |
| C70DS (1946-48) | 12 | 18* | 18 | 33 |
| C7064 (1946-48) | 12 | 18 | 12 FA | 34 |
| C90 (1945-48) | 12 | 18* | 18 | 33 |
| C90T (1945-48) | 12 | 18 | 18 | 33 |
| U90, U90T (1945-48) | 12 | 18 | 18 | 38 |
| C90D (1946-48) | 12 | 18 | 18 | 33 |
| C9064 (1946-48) | 12 | 18 | 20 FA | 33 |
| DC100, DC100T, DC100D (1945-48) | 20 | 18* | 18 | 40 |
| DC100N, DC100TN, DC100DN (1946-48) | 28 | 18* | 18 | 40 |
| DC10064 (1945-48) | 20 | 18* | 14 FA | 40 |
| DC10064S (1945-48) | 20 | 18* | 20 FA | 40 |
| DC10064SN (1946-48) | 28 | 18* | 14 FA | 40 |

* AUXILIARY TRANSMISSION 12 PINTS

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL GASOLINE MODELS (1945-48) | 135* | 17 | POS |
| ALL DIESEL MODELS (1945-48) | 155** | 23 | POS |

*-2 BATTERIES. **-4 BATTERIES.

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS WITH 377,447,501 ENGINES | 90-100 | 120-130 | 65-75 |
| ALL MODELS WITH HB600 DIESELS | 430-450 | 310-330 | 105-115 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 SERIES (1945-48) | OWN 377 | 6-4X5 | 40-2400 | 11°B | 4B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 100 |
| 70 SERIES (1945-46) | OWN 447 | 6-4½X5½ | 40-2400 | 11°B | 4B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 95 |
| 70 SERIES (NOTE A) (1946-48) | OWN 447 | 6-4½X5½ | 40-2400 | 16°B | 6B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 105 |
| 70S SERIES (1945-46) | OWN 501 | 6-4½X5½ | 40-2400 | 11°B | 4B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 95 |
| 70S SERIES (NOTE B) (1946-48) | OWN 501 | 6-4½X5½ | 40-2400 | 16°B | 6B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 105 |
| 90 SERIES (1945-46) | OWN 501 | 6-4½X5½ | 40-2400 | 11°B | 4B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 95 |
| 90 SERIES (NOTE B) (1946-48) | OWN 501 | 6-4½X5½ | 40-2400 | 16°B | 6B | ... | .018 | .021 | CH | 8 COM | 18MM | .025 | C | 6°B | 2B | 105 |
| D100 SERIES (1945-48) | CUM HB600 | 6-4½X6 | 40-1800 | 5°B | ... | ... | .014 | .022 | CH | DIESEL | | | | | | 525 |
| D100N SERIES (1946-48) | CUM NHB600 | 6-5⅛X6 | 40-2100 | ... | ... | ... | .017 | .027 | CH | DIESEL | | | | | | 500 |

NOTE A-BEGINNING WITH ENGINE No. 45-4541 NOTE B-BEGINNING WITH ENGINE No. 60-5561 C-.018-.024

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 377 (1945-48) | 110 | 2⅝ | 76 | 2⅞ |
| 447,501 (1945-46) | 110 | 2⅝ | 76 | 2⅞ |
| *447,*501 (1946-48) | 132 | 2-7/64 | 69 | 2⅝ |
| CUM HB600 (1945-48) | 136 | 3⅛† | 87 | 3⅜† |
| CUM NHB600 (1945-48) | 102 | 3⅛† | 72 | 3⅜† |

*-BEGINNING WITH 447 ENGINE No. 45-4541 AND 501 ENGINE No. 60-5561.

†-FREE LENGTH.

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| C50, C70, C70S, C90 (1945-48) | 0-¼ | 1 | N1-1P | 8 |
| C50D, C5064, C70D, C70DS, C90D (1946-48) | 0-¼ | 1 | N1-1P | 8 |
| C7064, C9064 (1946-48) | 0-¼ | 1 | N1-1P | 8 |
| C50T (1945-48) | 0-¼ | 1 | 0-2P | 8 |
| C70T, C70TS, C90T (1945-48) | 0-¼ | 1 | 0-2P | 8 |
| U50, U50T, U70, U70T, U70S, U70TS, U90 (1945-48) | 0-¼ | 1 | N1½-1½P | 8 |
| DC100, DC100T (1945-48) | 0-¼ | 1 | 0-2P | 8 |
| DC100D, DC10064S (1945-48) | 0-¼ | 1 | N1-1P | 8 |
| DC10064 (1945-48) | 0-¼ | 1 | 0-2P | 8 |
| DC100TN, DC10064N (1946-48) | 0-¼ | 1 | 0-2P | 8 |
| DC10064SN (1946-48) | 0-¼ | 1 | 0-2P | 8 |

N-NEGATIVE P-POSITIVE

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS (1945-48) | (S)30 | (M)20 | (W)10 | 140 | 90 | 140 | 90 | 140 | 90 | 140-90 |

S-SUMMER M-MILD W-WINTER

SERVICE DATA

# BROCKWAY

## Models 88WH, 128W, 146W, 152W, 154W, 154WH, 240XW, 260XL, 260XW, -XWL

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56-59

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | REAR Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| 88WH (1945-48) | 7 | 7 | 15 | 25 |
| 128W (1947-48) | 7 | 12 | 20 | 25 |
| 146W (1947-48) | 7A | 12 | 31 | 25 |
| 152W (1947-48) | 8A | 16 | 31C | 32 |
| 154W (1947-48) | 8A | 16 | 31C | 30 |
| 154WH (1947-48) | 14B | 18 | 30C | 40 |
| 240XW (1947-48) | 14B | 18 | 30C | 40 |
| 260XW, 260XL, 260XWL (1947-48) | 14B | 18 | 34D | 40 |

A-WHEN OIL FILTER IS DRAINED ADD 1 EXTRA QT.
B-WHEN OIL FILTER IS DRAINED ADD 4 EXTRA QTS.
C-WITH 2-SPEED AXLE-18 PT.
D-WITH 2-SPEED AXLE-32 PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| 88WH, 128W, 146W, 152W, 154W | 120 | 17 | Pos |
| 154WH, 240XW, 260XL | 155 | 23 | Pos |
| 260XW, 260XWL | 110* | 17 | Pos |

*-2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | SEE CONTINENTAL, PAGE 58 | | |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 88WH (1945-48) | CON 38B | 6-3 3/4 X 4 1/2 | 40-2000 | 6 1/2°B | 2 1/2B | .022 | .017C | .022C | CH | 7 COM | 18MM | .025 | .020 | 6°B | ... | ... |
| 128W (1947) 146W (1944-48) | CON 40B | 6-4X5 1/2 | 40-2000 | 6 1/2°B | 2 1/2B | .022 | .017C | .022C | CH | 7 COM | 18MM | .025 | .020 | 6°B | ... | ... |
| 152W, 154W (1944-48) | CON 42BX | 6-4 1/2 X 4 7/8 | 55-2500 | 16°B | 6B | .022 | .017C | .022C | CH | 7 COM | 18MM | .025 | .020 | 6°B | ... | ... |
| 154WH (1946-48) 240XW, 260XL (1947-48) | CON 46B | 6-4 1/2 X 5 1/2 | 55-2500 | 17°B | 6 1/2B | .024 | .022C | .022C | CH | 5 COM | 18MM | .025 | .020 | 6°B | ... | ... |
| 260XW (1944-48), 260XWL (1947-48) | CON 48B | 6-4 1/2 X 5 5/8 | 55-2500 | 17°B | 6 1/2B | .024 | .022C | .022C | CH | 5 COM | 18MM | .025 | .020 | 5°B | ... | ... |

C-COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 88WH, 128W, 146W (1944-48) | 110-118 | 1.52 | 53-59 | 1 7/8 |
| 152W, 154W (1944-48) O. | 110-118 | 1.52 | 53-59 | 1 3/4 |
| I. | 28-32 | 1 11/64 | 11.3-14.3 | 1 1/2 |
| 154WH, 240XW, 260XW, 260XL, 260XWL O. | 160-170 | 1 3/4 | 67-73 | 2 1/4 |
| (1944-48) I. | 82-88 | 1 1/2 | 33-37 | 2 1/4 |

O-OUTER. I-INNER.

## FRONT END

| MODEL | TOE-IN (in inches unless otherwise shown) | CAMBER (in degrees) | CASTER (in degrees) | KING PIN SLANT (in degrees) |
|---|---|---|---|---|
| 88WH, 128W, 146W, 154W, 154WH, 260XL, 260XWL | 1/8 - 3/8 | 1 | 1-2 | 8 |
| 152W, 240XW, 260XW | 1/8 - 3/8 | 1 | 1-2 | 0 |

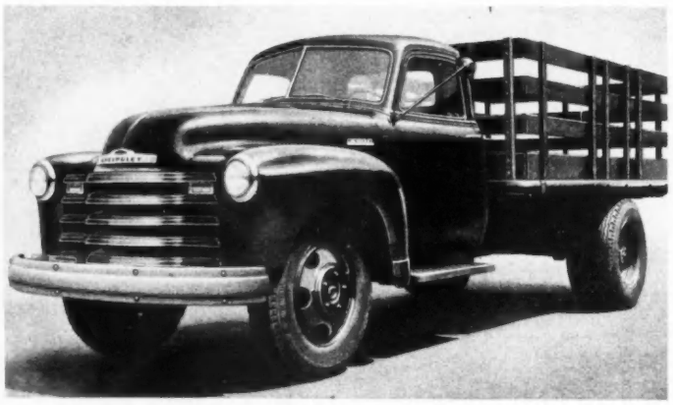
## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| 88WH, 128W, 146W, 152W, 154W (1944-48) | 40 ABOVE 32° | 30 BELOW 32° | ... | 90EP | 90EP | 90EP | 90EP | 160 | 110 | 140 |
| 154WH, 240XW, 260XW, 260XL, 260XWL (1944-48) | 30 ABOVE 32° | 30 BELOW 32° | ... | 90EP | 90EP | 90EP | 90EP | 160 | 110 | 140 |

EP-EXTREME PRESSURE LUBE

# CHEVROLET

**Models FJ, FP, FR, FS, RJ, RK, RVS, RWS RV, RW, RPS, RRS, RSS, RP, RR, RS, RX, L**



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| FP(½-TON) | 5 | 1½ | 4½ | 15 |
| FR(½-TON) | 5 | 1½-4½ | 6 | 15 |
| FS(1-TON) | 5 | 5½ | 6 | 15 |
| RJ,RK(1½-TON) | 5 | 5½ | 11 | 15 |
| RL,RVS,RWS,RPS,RRS,RSS, RV,RW,RX | 5 | 5½ | 12* | 15 |
| RP,RR,RS(2-TON COE) | 5 | 5½ | 14½ | 17.5 |

*-2-SPEED AXLE-14½PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| RX,RL,(SCH,BUS) | 125 | 17 | NEG |
| ALL TRUCKS | 100 | 15 | NEG |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings, (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 75-80 | 100-110 | 40-50 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS WITH 216.5 CU IN. ENGINE... | OWN | 6-3½x3⅜ | 14-2000 | 3°B | 1⅛B | .006 | .008A | .015B | AC | 104 | 10MM | .040 | .018 | 5°B | 2B | 110 |
| ALL MODELS WITH 235.5 CU IN. ENGINE... | OWN | 6-3⅜x3⅜ | 14-2000 | 3°B | 1⅛B | .006 | .008A | .015B | AC | 104 | 10MM | .040 | .018 | 5°B | 2B | 110 |

A-FOR HEAVY DUTY OPERATION.010.

B-FOR HEAVY DUTY OPERATION.020.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| ALL MODELS | 124-140 | 1½ | 53-63 | 1⅝ |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| FP (3100 SERIES) | | | 1½-2½ | 7½* |
| FP (3600 SERIES) | | | 2-3 | 7½* |
| FS,RK,RVS,RWS,RV,RW,RX,RL | | | 2½-3½ | 7½* |
| RPS,RRS,RSS,RP,RR,RS | | | 2½-3½ | 7½* |

*‡-1 DEGREE.

## LUBRICATION

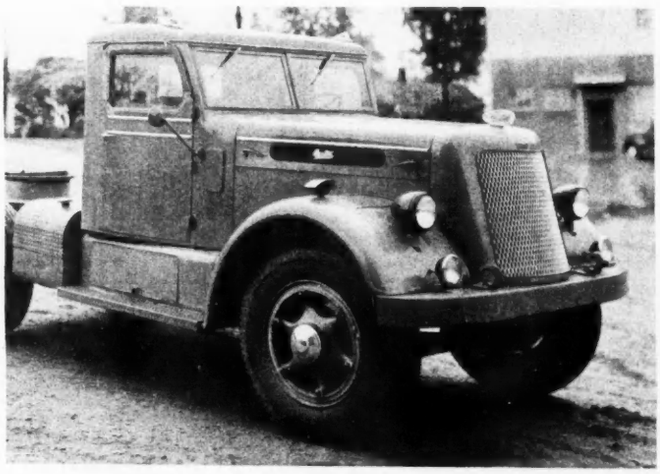
| MODEL | ENGINE: Viscosity and Temperature Range | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|
| ALL MODELS (1940-46) | 20 ABOVE 32‡ / 20W@10° TO 32° / 10W@-10° TO 10°* | 90 | 90 | 90AP | 90AP | ..... | ..... | 90 |

‡-30 ABOVE 90° *-10% KEROSENE BELOW-10° AP-"ALL-PURPOSE" GEAR LUBRICANT.

# CORBITT

## Models 18BG,-TG, H18TG, 22BG,-FG,-TG, H22TG, 22TD, H22TD, 25BG,-TG, H25TG, 25TD, H25TD, 27TD, H27TD, 28TG, 28TD

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| 18BG | 9 | 12 | 20 | 28 |
| 22BG | 10 | 16 | 23 | 30 |
| 25BG | 10 | 16 | 31 | 35 |
| 22FG | 10 | 16 | 10 | 30 |
| 18TG | 9 | 12 | 20 | 28 |
| H18TG | 9 | 12 | 23 | 28 |
| 22TG | 10 | 16 | 23 | 35 |
| H22TG | 10 | 16 | 31 | 35 |
| 25TG | 18 | 15 | 31 | 47 |
| H25TG | 18 | 15 | 30 | 47 |
| 28TG | 18 | 24 | 38 | 53½ |
| 22TD | 15 | 16 | 29 | 35 |
| H22TD | 15 | 16 | 32 | 35 |
| 25TD | 13 | 15 | 32 | 40 |
| H25TD | 13 | 15 | 34 | 40 |
| 27TD | 20 | 29 | 31 | 39 |
| H27TD | 20 | 29 | 34 | 39 |
| 28TD | 28 | 29 | 38 | 44 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| 18BG, 18TG, H18TG, 22BG, 22TG, H22TG, 25BG | 100* | 13 | POS |
| 25TG, H25TG, 28TG | 135* | 19 | Pos |
| 22TD, H22TD, 25TD, H25TD, 27TD, H27TD, 28TD | 200* | 25 | Pos |
| 22FG | 135* | 19 | Pos |

* --2 BATTERIES ** - 4 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 18BG, 18TG, H18TG | 5/16"-20-25 | | 5/16"- 70- 75 |
| 22BG, 22FG | 3/8"(16)30-35 | | 3/8"-100-110 |
| 22TG, H22TG, 25BG | 3/8"(24)40-45 | | 3/8"-130-140 |
| 25TG, H25TG, 28TG | | | 3/8"-145-155 |
| 22TD, H22TD | 158 | 175 | 158 |
| 25TD, H25TD | 5/16"-175<br>1"-280 | 175 | 158 |
| 27TD, H27TD, 28TD | 430-450 | 310-330 | 105-115 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. a or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18BG, 18TG, H18TG | CON M6330 | 6-4X4⅜ | 40-50-50 | 6½°B | ..... | .022A | .022A | .022AB | AC | 84 | 18MM | C | .020 | 6°B | ..... | 108 |
| 22BG, 22FG | CON B6371 | 6-4⅛X4⅜ | 40-50-50 | 6½°B | ..... | .022 | .017 | .025B | AC | 85 | 18MM | C | .020 | 6°B | ..... | 123 |
| 22TG, H22TG, 25BG | CON B6427 | 6-4⅜X4⅜ | 40-50-50 | 6½°B | ..... | .022 | .017 | .018B | AC | 84 | 18MM | C | .020 | 7°B | ..... | 124 |
| 25TG, H25TG | CON R6513 | 6-4½X5⅝ | 50-60-60 | 17°B | ..... | .0245 | .020 | .020B | AC | 84 | 18MM | C | .020 | 5°B | ..... | 120 |
| 28TG | CON R6602 | 6-4⅝X5⅝ | 50-60-60 | 17°B | ..... | .0245 | .020 | .020B | AC | 84 | 18MM | C | .020 | 5°B | ..... | 120 |
| 22TD, H22TD | HER DWXD | 6-4¼X4½ | 50-2600 | 26°B | ..... | ..... | ..... | ..... | | | DIESEL | | | | | .... |
| 25TD, H25TD | HER DRXC | 6-4⅝-5¼ | 30-1200 | 12°B | ..... | .016 | .016 | .106B | | | DIESE | | | | | 475 |
| 27TD, H27TD | CUM H6600 | 6-4⅞X6 | 30-40-1800 | 5°B | ..... | .014 | .014 | .022B | | | DIESEL | | | | | 525 |
| 28TD | CUM NH6600 | 6-5⅛X6 | 30-40-2000 | 20°B | ..... | .009 | .009 | .027B | | | DIESEL | | | | | 525 |

A-WITH ROTO VALVES, SET AT .018 B-WITH STELITE VALVES, INCREASE .003 C-.018-.020

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 18BG, 18TG, H18TG | 111-118 | 1.521 | 53-59 | 1 7/8 |
| 22BG, 22FG, 22TG, H22TG, 25BG...O. | 102-110 | 1.521 | 53-59 | 1 7/8 |
| 1. | 28-32 | 1 11/64 | 11.3-14.3 | 1 1/2 |
| 25TD, H25TG, 28TG.....O. | 160-170 | 1.75 | 67-73 | 2.25 |
| 1. | 82-88 | 1.75 | 33-37 | 2.25 |
| 22TD, H22TD | ..... | ..... | ..... | ..... |
| 25TD, H25TD.....O. | 48 | 1.449 | 27 | 1.844 |
| 1. | 30 | 1.355 | 17 | 1.75 |
| 27TD, H27TD | 129-143 | ..... | 83-91 | 3 3/4† |
| 28TD | 102 | ..... | 72 | 3 1/4† |

† FREE LENGTH. 1-INNER. O-OUTER

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| ALL 2-WHEEL DRIVE (1945-48) | 1/8-1/4 | 1 | 2-3½ | 8 |
| ALL FRONT WHEEL DRIVE (1945-48) | | 0 | 5 7 | 0 |

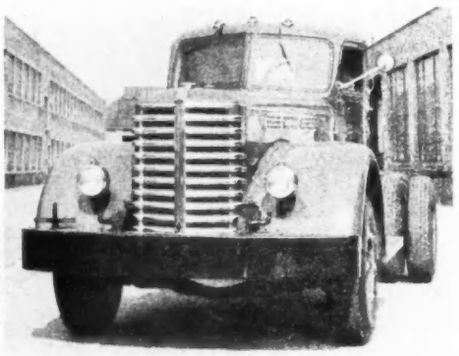
## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL DIESELS (1947-1948) | 40 ABOVE 90° | 30 ABOVE 32° | 20 BELOW 32° | 140 | 90 | 140 | 90 | 140 | 140 | 140 |
| ALL GASOLINE MODELS (1947-1948) | 50 ABOVE 90° | 40 ABOVE 32° | 30 BELOW 32° | 140 | 90 | 140 | 90 | 140 | 140 | 140 |

# DIAMOND T

## Models 201, 306, 404, -SC, 509, -C, -SC, 614, 614C, 702A, 703, 806A, 806C, 809, 901, 910

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| 201 | 6 | 4½ | 6 | 16 |
| 306 | 9 | 4½ | 8A | 17 |
| 404 | 9 | 4½ | 9A | 23 |
| 404SC | 9 | 4½ | 8AB | 26 |
| 509 | 9 | 4½C | 9AD | 23 |
| 509SC | 9 | 4½ | 9A | 26 |
| 509C | 9 | 4½ | 13 | 24 |
| 614 | 9 | 12 | 36E | 22 |
| 614C | 9 | 12 | 20 | 23 |
| 702A | 8 | 20 | 20 | 43 |
| 703 | 10 | 20 | 20 | 42 |
| 806A | 8 | 11F | 38G | 43 |
| 806C | 10 | 20 | 16 | 28 |
| 809 | 10 | 20F | 22H1 | 44 |
| 901 | 18 | 15J | 38ILM | 54 |
| 910 | 20 | 26J | 38LN | 53 |

A-EATON 135C. AXLE-13 PT. B-CLARK R-950. TRANS.-9 PT.
C-CLARK 205V TRANS.-12 PT. D-EATON 16500 AXLE-17 PT.
E-WITH EATON 18500 AXLE-20 PT. F-AUX. TRANS.-8 PT.
G-WITH EATON 20500 AXLE-22 PT.
H-WITH TIMKEN U-200-P AXLE OR S200-P-38 PT.
I-WITH TIMKEN U-300 AXLE-40 PT. J-AUX. TRANS.-13 PT.
L-WITH TIMKEN SW-3012 AXLE-17 PT.
M-WITH TIMKEN SD3010 AXLE-14 PT.
N-WITH TIMKEN SD462-W OR SW-456-W-20 PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| 201.306.404.404SC | 100 | A | POS |
| 509.509SC.614.703 | 155 | 19 | POS |
| 509C.614C | 160 | B | POS |
| 702A.806A | 152 | 19 | POS |
| 809.901,910 | 168 | C | POS |

A-SAE NO. M; B-SAE NO.7B; C-SAE NO.5H.

## TENSIONS

SEE HERCULES, CONTINENTAL, CUMMINS, P. 56-58

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | HER QXD-3 | 6-3⅞X4½ | 25-40 | 5°A | ... | .006 | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 306 | HER QXLD | 6-3⅞X4½ | 25-40 | 5°B | ... | ... | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 404.404SC | HER JXE-3 | 6-3½X4½ | 25-40 | 5°B | ... | ... | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 509 | HER JXB | 6-3⅞X4½ | 25-40 | 5°B | ... | ... | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 509.509C.509SC | HER JXC | 6-3⅞X4½ | 25-40 | 5°B | ... | ... | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 509.614.614C | HER JXD | 6-4X4½ | 25-40 | 5°B | ... | ... | .008 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 614 | HER JXLD | 6-4X4½ | 25-40 | 5°B | ... | ... | .010 | .010 | CH | J10COM | 14MM | .027 | .020 | 6°B | ... | ... |
| 702A.806A | HER WXLD | 6-4½X4½ | 25-40 | 5°B | ... | ... | .012 | .016 | CH | J10COM | 14MM | .027 | .020 | D | ... | ... |
| 703 | CON T6427 | 6-4½X4½ | 25-40 | 16°B | ... | .022 | .017 | .017 | CH | 8COM | 18MM | .025 | .020 | 5°B | ... | ... |
| 806C | HER WXLC-3 | 6-4½X4½ | 25-40 | 5°B | ... | ... | .012 | .016 | CH | J10COM | 14MM | .027 | .020 | TC | ... | ... |
| 809 | CON T6427 | 6-4⅞X4½ | 25-40 | 16°B | ... | .022 | .017 | .017 | CH | 8COM | 18MM | .027 | .020 | 5°B | ... | ... |
| 901 | CON R6572 | 6-4⅞X5½ | 50-55 | 12°B | ... | .024 | .020 | .020 | CH | 5COM | 18MM | .025 | .020 | 5°B | ... | ... |
| 910 | CUM HB-600 | 6-4⅛X6 | ... | ... | ... | ... | .014 | .022 | | | | | | | | |

D-½ IN. AHEAD OF TC MARK ON FLYWHEEL.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| HER QXD-3.QXLD | 48LB. FOR 1 IN. DEFL. | | | 2½-2 3/64† |
| HER JXE-3.JXB.JXC.JXD | 60-65 AT 1.594 LENGTH | | | 2⅝† |
| HER JXLD | 112 AT 1.628 LENGTH* | | | |
| HER WXLC.WXLD O | 47½-52½ | AT 2 35/64 LENGTH | | 3½† |
| I | 97-107 AT 2⅝ LENGTH | | | |
| CON T6427 O | 53-59 AT | 1⅝ LENGTH | | 2⅜† |
| I | 11½-14½ | AT 1⅝ LENGTH | | 1⅞† |
| CON R6572 O | 67-73 AT | 2½ LENGTH | | 2⅝† |
| I | 32-38 AT | 2¼ LENGTH | | 2⅜† |
| CUM HB600 | 129-143 | 2 | 83-91 | 2½ |

†-FREE LENGTH I-INNER O-OUTER
*-DATA SHOWN WITH 4 ACTIVE COILS; WITH 5 ACTIVE COILS: 58.6LB. AT 1.984 IN LENGTH.

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| 201 | [illegible] | 1 | 4 2/3 | 9 |
| 306 | [illegible] | 1 | 4 2/3 | 9 |
| 404.404SC.509.509SC | [illegible] | 1 | 1½ | 9 |
| 509C.614.614C | [illegible] | 1 | 1½ | 8½ |
| 702A.703.806A | [illegible] | 1 | 2½ | 8 |
| 806C | [illegible] | 1 | 2½ | 8 |
| 809 | [illegible] | 1 | 2½ | 6 |
| 901.910 | [illegible] | 1 | 1½ | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| 201.306.404.404SC.509.509SC.614.614C.702A.703.806C.809 | 40 ABOVE 32° | 30@ 10° TO 32° | 20 OR 10 BELOW 10° | 140 | 90 | A | B | 140EP | 140EP | 140 |
| 806A.900.910.901 | 40 ABOVE 32° | 30@ 10° TO 32° | 20 OR 10 BELOW 10° | 50C | 50C | A | B | 140EP | 140EP | 140 |

NOTE-HEAVY-DUTY DETERGENT (HD) ENGINE OIL RECOMMENDED FOR HEAVILY WORKED AND HIGHWAY TRUCKS; PREMIUM-TYPE ENGINE OIL FOR CITY TRUCKS AND INTERMITTENT OPERATION.
A-ALL SINGLE-SPEED AXLES OTHER THAN HYPOID, 140; ALL 2-SPEED AXLES OTHER THAN HYPOID, 90EP OR 140EP ABOVE 100°; ALL HYPOID AXLES, 140HYP.
B-ALL SINGLE-SPEED AXLES OTHER THAN HYPOID, 90; ALL 2-SPEED AXLES OTHER THAN HYPOID, 90EP OR 150EP ABOVE 100°; ALL HYPOID AXLES, 90HYP.
C-WITH 326VO TRANSMISSION, 90 WINTER, 140 SUMMER. EP-TRUCK-TYPE EXTREME PRESSURE LUBE. HYP.-HEAVY-DUTY HYPOID LUBE.

# DODGE

## Models B-1-B, B-1-C, B-1-D, B-1-PW, B-1-F, B-1-H, B-1-J, B-1-R, B-1-T, B-1-V

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| B-1-B,B-1-C | 5 | 3½ | 3⅝ | 16 |
| B-1-D | 5 | 3½ | 5½ | 16 |
| B-1-PW | 5 | *5 | 6 | 18 |
| B-1-F,B-1-H,B-1-FW,B-1-HW | 6 | 6 | 11 | 18 |
| B-1-FA,B-1-HA,B-1-FWA, B-1-HWA | 6 | 6 | 16 | 18 |
| B-1-J,B-1-JW | 6 | 11 | 10 | 20 |
| B-1-JA,B-1-JWA,B-1-KWA | 6 | 11 | 16 | 20 |
| B-1-R | 8 | 11 | 20 | 28 |
| B-1-RA | 8 | 11 | 26 | 28 |
| B-1-T | 8 | 11 | 23 | 28 |
| B-1-TA | 8 | 11 | 29 | 28 |
| B-1-V | 8 | 11 | 31 | 28 |
| B-1-VA | 8 | 11 | 32 | 26 |

*—TRANSFER CASE - 3 PT.; WITH P.T.O. - 6½ PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| B-1-B,B-1-C | 100 | 15 | POS |
| B-1-D,B-1-PW | 105 | 15 | POS |
| B-1-F,B-1-H,B-1-FW,B-1-HW | 114 | 17 | POS |
| B-1-J,B-1-KA,B-1-JW,B-1-KWA | 120 | 17 | POS |
| B-1-R | 136 | 17 | POS |
| B-1-T,B-1-V | 153 | 19 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| B-1-B,B-1-C, B-1-D,B-1-PW, B-1-F,B-1-H, B-1-FW,B-1-HW, B-1-J,B-1-KA, B-1-JW,B-1-KWA, B-1-R,B-1-T,B-1-V | NUTS 52-57 CAP SCREWS 65-70 55-60 HOT | 80-85 85-90 | 45-50 50-75 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless Noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-1-B,B-1-C | OWN 218 | 6-3⅛X4½ | 40-800 | 12°B | 5B | ... | .010 | .014 | AL | A5 | 14MM | .025 | .020 | TC | ... | 120 |
| B-1-D,B-1-PW | OWN 230 | 6-3⅛X4½ | 40-800 | 12°B | 5B | ... | .010 | .014 | AL | A5 | 14MM | .025 | .020 | 2°A | ⅜A | 125 |
| B-1-F,B-1-FA,B-1-H,B-1-HA,B-1-FV, B-1-FVA,B-1-HV,B-1-HVA | OWN 237 | 6-3⅛X4½ | 40-800 | 12°B | 5B | ... | .010 | .014 | AL | A5 | 14MM | .025 | .020 | TC | ... | 130 |
| B-1-J,B-1-JA,B-1-KA,B-1-JW,B-1-JWA, B-1-KWA | OWN 251 | 6-3⅛X4½ | 40-800 | 12°B | 5B | ... | .010 | .018 | AL | A5 | 14MM | .025 | .020 | 2°A | ⅜A | 130 |
| B-1-R,B-1-RA | OWN 282 | 6-3⅝X4½ | 50-1000 | 21°B | 9B | ... | .010 | .018 | AL | A5 | 14MM | .025 | .020 | 3°B | 3B | 110 |
| B-1-T,B-1-TA,B-1-V,B-1-VA | OWN 331 | 6-3⅞X5 | 50-1000 | 21°B | 9B | ... | .010 | .018 | AL | A5 | 14MM | .025 | .020 | TC | ... | 120 |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| B-1-B,B-1-C,B-1-D,B-1-PW, B-1-F,B-1-H,B-1-FM,B-1-HW, B-1-J,B-1-KA,B-1-JW, B-1-KWA | 111 | 1¼ | 42½ | 1⅞ |
| B-1-R,B-1-T,B-1-V | 108 | 1⅛ | 42½ | 2 |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| B-1-B,B-1-C,B-1-D | ⅛ | 1½ | LOADED-2½ NO LOAD-1 | 4 |
| B-1-PW | O-⅛ | 1½ | LOADED-1½ NO LOAD-½ | 8 |
| B-1-F,B-1-H,B-1-FM,B-1-HW,B-1-J, B-1-KA,B-1-JW,B-1-KWA | ⅛-⅜ | 2 | LOADED-2 NO LOAD-1 | 7 |
| B-1-R | ⅛-⅜ | 2 | LOADED-2½ NO LOAD-1½ | 7 |
| B-1-T | ⅛-⅜ | 1 | LOADED-2½ NO LOAD-1½ | 8 |
| B-1-V | ⅛-⅜ | 1 | LOADED-3 NO LOAD-2 | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| B-1-B,B-1-C,B-1-D,B-1-PW | 20 ABOVE 32° | 20W= 10° TO 32° | 10W BELOW 10°• | 90 | 90A | 90 | 90A | 90 | 90 | 140C |
| ALL OTHERS | 30 ABOVE 32° | 20W= 10° TO 32° | 10W BELOW 10°• | 90 | 90A | 90B | 90A | 90 | 90 | 140C |

*—USE 10% KEROSENE BELOW-10° A—USE 80% 90,20% 10W OR STRAIGHT 80 BELOW-10° B—WITH DOUBLE REDUCTION AXLES, USE 140 C—ON 1 AND 2-TON MODELS ONLY, USE FIBRE GREASE

# FEDERAL

## Series 16M, 18M, 25M, 29M, 35M, 45M, 55M, 60M, 65M, 663M, 664M ('46 '48)

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| 16M | 6 | 4 | 6 | 20 |
| 18M,18M2 | 9 | 4 | 8 | 25 |
| 25M,25M2 | 9 | 13 | ... | 25 |
| 29M,29M2,29MA | 9 | 13* | 12 | 25 |
| 35M,35M2 | 8 | 20* | ... | 25 |
| 45M,45M2 | 8 | 20* | 16 | 31 |
| 55M,55MA | 8 | 20* | 19 | 31 |
| 60MA,60M2 | 10 | 12** | 38 | 30 |
| 65M2,65MA | 14 | 12** | 40 | 40 |
| 663MA,664MA,664MAB | 14 | 12** | 40 | 40 |

*—IN "MA" MODELS ADD 10 PTS. FOR AUX. TRANS.
**—IN "MA" MODELS ADD 13 PTS. FOR AUX. TRANS.

## BATTERY

| MODEL | Amp. Hr. Capacity | Numbers of Plates | Terminal Grounded |
|---|---|---|---|
| 16M,18M,25M,29M,35M SERIES | 136 | 17 | POS |
| 45M,55M,60M SERIES | 153 | 19 | POS |
| 65M2,65MA,663MA,664MAB,664MA | 153* | 19 | POS |

*—2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 16M,18M,25M,29M, SERIES | 75 | *60 **70 | 52 |
| 35M,45M,55M,60M, 65M,663M,664M SERIES | SEE DATA UNDER CONTINENTAL, PAGE 58 | | |

*—CENTER AND REAR. **—FRONT AND INTERMEDIATE.

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16M (1947-48) | HER JXE | 6-3½X4½ | 40-2500 | 5°A | ... | .008 | .006 | .006 | AC | 44 | 14MM | .025 | .020 | 10°B | 3B | 98 |
| 18M,18M2 (1944-48) | HER JXB | 6-3⅝X4½ | 40-2500 | 5°B | ... | .008 | .008C | .010C | CH | J10COM | 14MM | .025 | .020 | 10°B | 3B | 98 |
| 25M,25M2 (1948) | HER JXC | 6-3⅝X4½ | 40-2500 | 5°B | ... | .008 | .008C | .010C | CH | J10COM | 14MM | .025 | .020 | 10°B | 3B | 98 |
| 29M,29M2,29MA (1944-48) | HER JXD | 6-4X4½ | 40-2500 | 5°B | ... | .008 | .008C | .010C | CH | J10COM | 14MM | .025 | .020 | 10°B | 3B | 98 |
| 35M,35M2 (1948) | CON T6371 | 6-4⅛X4⅝ | 40-2500 | 16°B | ... | .022 | .017 | .017 | ... | ... | 18MM | .025 | ... | ... | ... | ... |
| 45M,45M2,55M,55MA (1944-48) | CON T6427 | 6-4⅛X4⅝ | 55-2600 | 16°B | ... | .022 | .017 | .017 | ... | ... | 18MM | .025 | ... | ... | ... | ... |
| 60M (1944-48) | CON 22R | 6-4½X5½ | 30-1000 | 5½°B | ... | .014 | .012 | .012 | CH | 6COM | 18MM | .025 | .020 | 15°B | ... | ... |
| 65M2,65MA,663MA,664MAB,664MA | CON R-6602 | 6-4⅝X5⅞ | 55-2600 | 6½°B | ... | ... | .017 | .017 | CH | 8COM | 18MM | .025 | .020 | 7°B | ... | 98 |

C—COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 16M,18M,25M,29M SERIES | 52 | 1⅜ | 31 | 1⅝ |
| 35M,45M,55M SERIES O | 129 | 1.458 | 71 | 1⅝ |
| I | 57 | 1⅜ | 12.8 | 1⅝ |
| 60M SERIES O | 110 | 1¼ | 56¾ | 2¼ |
| I | 50 | 1⅜ | 22½ | 2⅜ |
| 65M,663M,664M SERIES O | 160-170 | 1½ | 67-73 | 2¼ |
| I | 82-88 | 1⅜ | 33-37 | 2¼ |

I—INNER O—OUTER

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| ALL MODELS (1944-48) | 1/8 | 1 | 3 | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS (1944-48) | N-40, H-50 @50° TO 110° | 30@ 15° TO 50° | 10W@-20° TO 15° | 160 | 90 | 160 | 90 | ... | ... | 160 |

N—NORMAL SERVICE H—HEAVY DUTY

SERVICE DATA

# FORD

## Models F-1, F-2, F-3, F-4, F-5, F-6, F-7, F-8

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| F-1 (6-CYL) | 5 | 2½ | 3 | 18 |
| F-1 (8-CYL) | 5 | 2½ | 3 | 23 |
| F-2,F-3 (6-CYL) | 5 | 6 | 3 | 18 |
| F-2,F-3 (8-CYL) | 5 | 6 | 3 | 23 |
| F-4,F-5 (6-CYL) | 5 | 6 | 5 | 18 |
| F-4,F-5 (8-CYL) | 5 | 6 | 5 | 23 |
| F-6 (6-CYL) | 5 | 8 | 15 | 18 |
| F-6 (8-CYL) | 5 | 6 | 15 | 23 |
| F-7 | 9 | 11 | 11 | 33 |
| F-8 | 9 | 12 | 19 | 33 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| F-1,F-2,F-3,F-4,F-5,F-6 | 100 | 17 | POS |
| F-7,F-8 (+F-5 SCH. BUS) | 120 | 17 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 55-60 | 95-105 | 45-50 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F-1,F-2,F-3,F-4,F-5,F-6 (6-CYL) | OWN 7HT | 6-3.3X4.4 | 50-2000 | 11°B | ... | .015 | A | B | CH | H-9 | 14MM | C | .025 | TC | ... | 110 |
| F-1,F-2,F-3,F-4,F-5,F-6 (8-CYL) | OWN 8RT | 8-3⅛X3¾ | 57-2000 | TC | ... | .015 | D | E | CH | H-9 | 14MM | C | .015 | 2°B | ... | 110 |
| F-7,F-8 (8-CYL) | OWN 8EQ | 8-3½X4⅜ | 50-2000 | 14°B | ... | ... | ... | ... | CH | H-9 | 14MM | C | .015 | 4°B | ... | 112 |

A-.009-.011 COLD
B-.013-.015 COLD
C-.029-.032
D-.010-.012 COLD
E-.014-.016 COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 6-CYL 226 ENGINE | 112-120 | 1.75 | 47-53 | 2.109 |
| 8-CYL 239 ENGINE | 76-80 | 1.84 | 37-40 | 2.13 |
| 8-CYL 337 ENGINE | 140-152 | 1.32 | 62-68 | 1.68 |

## FRONT END

| MODEL | TOE-IN (in inches unless otherwise shown) | CAMBER (in degrees) | Caster (in degrees) | KING PIN SLANT (in degrees) |
|---|---|---|---|---|
| F-1,F-2,F-3,F-4,F-5,F-6 | 0-1/10 | 5 | 3 | 8½ |
| F-5,F-6 (C-O-E) | 0-1/10 | 5 | 4 1/3 | 8½ |
| F-7,F-8 | 0-1/10 | 1 | 3 | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| F-1 | 30 ABOVE 32° | 20W 10°-32° | 10W-10°-10°* | 140EP | 90EP | 90HYP | 90HYP | 90EP | 90EP | 140 |
| F-2,F-3,F-4,F-5,F-6 | 30 ABOVE 32° | 20W 10°-32° | 10W-10°-10°* | 140 | 90 | 140EP | 90EP | 90EP | 90EP | 140 |
| F-7 | 30 ABOVE 32° | 20W 10°-32° | 10W-10°-10°* | 140 | 90 | 140A | 90A | 90EP | 90EP | 140 |
| F-8 | 30 ABOVE 32° | 20W 10°-32° | 10W-10°-10°* | 140 | 90 | 140 | 90 | 90EP | 90EP | 140 |

*-BELOW-10°, USE 10% KEROSENE. A-HEAVY-DUTY HYPOID LUBE #M-4642-D EP-MILD EXTREME PRESSURE GEAR LUBE HYP-HYPOID GEAR LUBE.

# FWD

## Models HA, HG, HR, SU, M7, M7D, M10, M10D, M6x6, M6x6D

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

SERVICE DATA

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| HA | 10 | 20A | 5EA | 26 |
| HR,HG | 12 | 20A | 5EA | 26 |
| SU | 12 | 24B | 8EA | 36½ |
| M7,M10,M6X6 | 20 | 28C | 16EA | 45 |
| M7D | 24 | 28 | 16EA | ..... |
| M10D,M6X6D | 24 | 28 | 20D | ..... |

A-TRANSFER CASE-6PT
B-TRANSFER CASE-16PT
C-TRANSFER CASE-28PT
D-FRONT AXLE-16PT

## BATTERY

| MODEL | Amp. Hr. Capacity | Numbers of Plates | Terminal Grounded |
|---|---|---|---|
| HA,HR,HG,SU*,M6X6*,M7*,M10* | 153 | 19 | Pos |
| M7D**,M10D**,M6X6D** | 153 | 19 | Pos |

*-2 BATTERIES
**-4 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| HA | 73-75 | 88-92 | 67-69 |
| HR,HG | 73-75 | 96-100 | 67-69 |
| SU | 73-75 | 129-133 | 121-125 |
| M7,M10,M6X6 | 130-134 | 242-250 | 73-75 |
| M7D,M10D,M6X6D | S95-100<br>L150-160 | 245-275 | 150-160 |

S-SMALL, L-LARGE.

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth°TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HA (1942-48) | WAU 6BZ | 6-4x4¾ | 40-2500 | 5°A | ..... | .010 | .012C | .016C | CH | 7COM | 18MM | .025 | .015 | 23°B | ..... | 109 |
| HG,HR,(1946-48) | WAU 6VZ | 6-4¾x4½ | 40-2500 | 8°A | ..... | .004 | .010C | .018C | CH | 7COM | 18MM | .025 | .015 | 24°B | ..... | 115 |
| SU, (1946-48) | WAU 6SRKR | 6-4⅞x5½ | 40-2250 | 8°A | ..... | .004 | .010C | .020C | CH | 1COM | ⅞ | .025 | .015 | 18°B | ..... | 119 |
| M7,(1942-48) M10,M6x6 (1948) | WAU 6-145UK | 6-5¼x6 | 40-2000 | 5°A | ..... | .006 | .014C | .025C | CH | 6COM | 18MM | .025 | .015 | ..... | ..... | 120 |
| M7D,M10D,M6x6D, (1948) | BUDA 6DC-844 | 6-5¼x6 | 30-1200 | 20°B | ..... | .010 | .015 | .015 | DIESEL | | | | | | ..... | 390 |

C-COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| HA | 101-119 | 1¾ | 56-66 | 2⅛ |
| HG,HR | 93-109 | 1⅞ | 59-69 | 2⅛ |
| SU | 89-99 | 2 25/64 | 54-64 | 2 49/64 |
| M7,M10,M6X6 | 105-115 | 3⅛ | 65-75 | 3⅜ |
| M7D,M10D,M6X6D | 175 | 2⅝ | 65 | 2⅝ |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| HA,HR,HC | ⅛ | 1 | 2 | 8 |
| SU | ⅛ | 1½ | 2 | 0 |
| M7,M10,M6X6,M7D,M10D,M6X6D | ⅛ | 0 | 5 | 0 |

## LUBRICATION

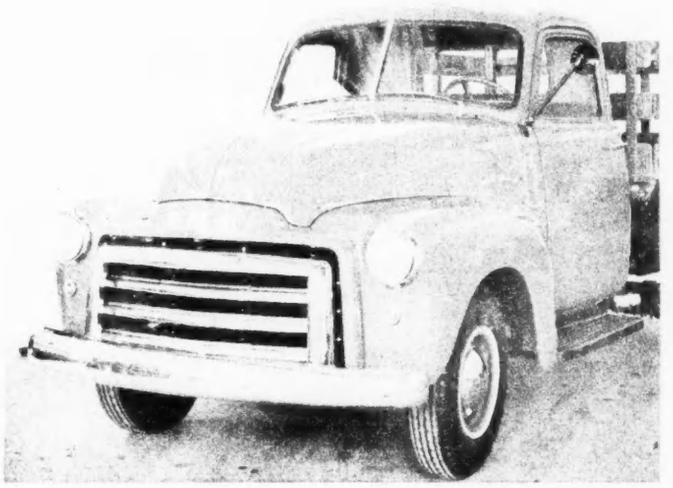
| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| HA,HR,HG | (S) L30, H40 | (MW)L20, H30 | (W)L10W, H20W | 140 | 90 | 90MEP | 80MEP | 140 | 90 | 140-90 |
| SU,M7,M10,M6X6 | (S) L40, H50 | (MW)L30, H40 | (W)L20W, H30W | 140 | 90 | 90MEP | 80MEP | 140 | 90 | 140-90 |
| M7D,M10D,M6X6D | 50 ABOVE 90° | 30@32° -90° | 10 BELOW 32° | 140 | 90 | 90MEP | 80MEP | 140 | 90 | 140-90 |

H-HEAVY DUTY. L-LIGHT DUTY. MEP-MILD EXTREME PRESSURE LUBE. S-SUMMER. W-WINTER. MW-MILD WINTER.

# GMC

## Series FC, FF, AC, AF, EY

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 58.



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| FC-100 | 8* | 1⅝ | 4½ | 17 |
| FC-150 | 8* | 1⅝ | 6 | 18 |
| FC-250,280 | 8* | 5½ | 6 | 18 |
| FC-300,FCS-300 | 8* | 5½ | 11 | 18 |
| FC-350,FF-350 | 8* | 5½ | 12 | 18 |
| FCS-370 | 8* | 12 | 12 | 18 |
| FC-450,FF-450,FCS-450 | 8* | 12 | 10 | 18 |
| AC-520,ACR-520 | 10½ | 12 | 2S-16 | 18 |
| ACS-520 | 10½ | 12 | SB10 | 18 |
| AF-520AFR-520 | 10½ | 12 | 2S-16 | 18 |
| AC-600,AF-600 | 10½ | 12 | SB,18 | 18 |
| AC-620,ACR-620,AFR-620 | 11½ | 14 | 2S-17 | 22 |
| AC-650,AF-650 | 10½ | 12 | SB-18 | 18 |
| AC-700,AF-700,ACT-700, AFT-700 | 11½ | 14 | SB-18 | 22 |
| ACW-700,AFW-700 | 11½ | 14 | SB-22 | 22 |
| AC-720,AF-720,ACR-720, AFR-720 | 11½ | 9 | 2S-18 | 22 |
| AC-750,AF-750,ACR-750, AFR-750 | 11½ | 9 | 2S-20 | 22 |
| AC-770 | 11½ | 14 | DR-38 | 22 |
| AC-800,AF-800,EY-800,AC-850 AF-850,EY-850 | 11½ | 9 | DR-38 | 22 |
| ACW-800 | 11½ | 9 | WD-20 | 22 |
| ACW-850 | 11½ | 9 | WD-32 | 22 |
| AC-870,AC-890 | 11½ | 9 | DR-20 | 25 |

*—ADD 2 QUARTS FOR FILTER. 2S—2-SPEED.
SR—SPIRAL BEVEL. DR—DOUBLE REDUCTION.
WD—WORM DRIVE.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| FC,FF THRU 450 | 100 | 15 | POS |
| FCS-300,370,450 | 125 | 19 | POS |
| AC,AF 520 THRU 650 | 110 | 17 | POS |
| AC,AF 700 THRU 850 | 150 | 19 | POS |
| AC,AF 870 AND 890 | 175 | 21 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 228,248,270 | 70-80 | 70-80 | 40-45 |
| 308 | 75-85 | 75-85 | 65-75 |
| 361,426,477 | 75-80 | 90-100 | 90-100 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FC-100,150,250,280 | OWN 228 | 6-3⅛X3⅝ | 25-3200* | 4°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | ..... | ..... | 100 |
| FC,FCS-300,FC,FF-350,FCS-370 | OWN 248 | 6-3⅛X3⅝ | 25-2750* | 4°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | ..... | ..... | 100 |
| FC,FCS,FF-450 | OWN 270 | 6-3⅛X3⅝ | 25-2750* | 4°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | ..... | ..... | 100 |
| AC,ACR,ACS-520,AF,AFR,520,AC,AF-600, AC,AF-650 | OWN 308 | 6-3⅝X4½ | 35-40 | 4°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | TC | ..... | 100 |
| AC,ACR,AF,AFR-620,AC,ACW,AF,AFW-700, AC-770 | OWN 361 | 6-4⅛X4½ | 35-40 | 8°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | TC | ..... | 100 |
| AC,ACR,AF,AFR-720;AC,ACW,AF-800,AC-870 | OWN 426 | 6-4⅛X5 | 35-40 | 8°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | TC | ..... | 100 |
| AC,ACR,AF,AFR-750,EY-800,AC,ACW,AF, EY-850,AC-890 | OWN 477 | 6-4⅛X5 | 35-40 | 8°B | ..... | ..... | .012 | .016 | AC | 44 COM | 14MM | .030 | A | TC | ..... | 100 |

*—USED ENGINE NEW OR REBUILT. 15LB HIGHER. A—.018 TO .024.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 228 | 124-140 | 1.505 | 54-62 | 1.821 |
| 248 | 124-140 | 1.505 | 54-62 | 1.821 |
| 270 | 124-140 | 1.505 | 54-62 | 1.921 |
| 308 | 117-125 | 1-41/64 | 58-64 | 1-63/64 |
| 361 | 117-125 | 1-41/64 | 58-64 | 1-63/64 |
| 426 | 117-125 | 1-41/64 | 58-64 | 1-63/64 |
| 477 | 117-125 | 1-41/64 | 58-64 | 1-63/64 |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| FC-100 | [illegible] | 1½ | 2° | 7½ |
| FC-150 | [illegible] | 1½ | 2½° | 7½ |
| FC-250,FC-280 | [illegible] | 1½ | 2½° | 7½ |
| FC-300,FCS-300,FC-350 | [illegible] | 1½ | 2½° | 7½ |
| FCS-370,FCS-450,FC-450 | [illegible] | 1 | 1½° | 5 |
| FF-350 | [illegible] | 1½ | 3° | 7½ |
| FF-450 | [illegible] | 1 | 2½° | 8 |
| AC-520,550,600,620,650,AF-520,550,600,620,650 ACR-520,620,AFR-520 | [illegible] | 1 | 2° | 8 |
| AC-700,720,750,770,800,850,870,890,AF-700,720 750,800,850,ACR-720,750,AFR-720 | [illegible] | 1 | 4° | 9 |

*—LOADED.

## LUBRICATION

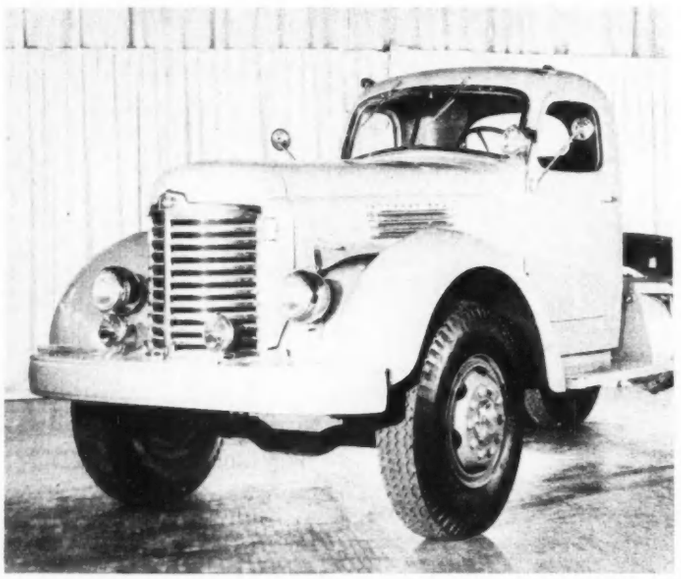
| MODEL | ENGINE: Viscosity and Temperature Range | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|
| FC,FCS AND FF SERIES (1947-48) | 20 ABOVE 32° 10W BELOW 32° ..... | 50A | 50A | 90HYP(B) | 90HYP(C) | 140D | 140D | 140-90E |
| AC,ACR,AF SERIES (1947-48) | 30 ABOVE 32° 10W BELOW 32° ..... | 50A | 50A | 90HYP(B) | 90HYP(C) | 140D | 140D | 140-90E |

A—AVIATION GRADE ENGINE OIL WITH ANTI-FOAM CHARACTERISTICS. B—UNDER SEVERE CONDITIONS USE 140HYP. C—USE 80 HYP BELOW 0°. D—ADD 3% CYLINDER OIL SODIUM SOAP GREASE
E—STRAIGHT MINERAL OIL. HYP—TRUCK-TYPE HYPOID LUBE.

# INTERNATIONAL

## Series KB-1 through KB-12 and Models KBR-14, W3042H, W4064H, W6564

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| KB-1,KB-2,KB-1M | 5½ | 3 | 4 | 15 |
| KB-3,KB-3M | 5½ | 3A | 5 | 15 |
| KB-5 | 5½ | 5½ | 7 | 15½ |
| KBS-5 | 5½ | 5½ | 13 | 15½ |
| KB-6 | 7¼ | 5½B | 7 | 20½ |
| KBS-6 | 7¼ | 5½B | 13 | 20½ |
| KB-6F | 7¼ | 5½B | 7EA | 20½ |
| KB-7 | 7½ | 11 | 7 | 20½ |
| KBS-7 | 7½ | 11 | 18 | 20½ |
| KB-8 | 10 | 11C | 18 | 25½ |
| KBR-8 | 10 | 11C | 20 | 25½ |
| KBS-8 | 10 | 11C | 18 | 25½ |
| KB-8F | 10 | 18D | 10EA | 25½ |
| KB-10 | 10 | 18D | 12 | 25½ |
| KBR-10 | 10 | 18D | 17 | 25½ |
| KBS-10 | 10 | 18D | 20 | 25½ |
| KB-11,KBR-11 | 10 | 26 | 38 | 26½ |
| KBS-11 | 10 | 26 | 37 | 26½ |
| KB-11F | 10 | 26 | 16EA | 26½ |
| KB-12,KBR-12,KB-14 | 16 | 26 | 38 | 36½ |
| KBS-12 | 16 | 26 | 37 | ..... |
| W-3042-H | 22 | 18 | 38 | 68 |
| W-4064-H | 22 | 18 | 16EA | 68 |
| W-6564-OH | 22 | 18 | ..... | 68 |

A-WITH 4-SPEED TRANSMISSION-5½PT.
B-WITH 5-SPEED TRANSMISSION-11PT.
C-WITH F-52 TRANSMISSION-18 PT.
D-WITH F-54B TRANSMISSION-26 PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Numbers of Plates | Terminal Grounded |
|---|---|---|---|
| KB-1 TO KB-5 SERIES | 105 | 15 | Pos |
| KB-6 & KB-7 SERIES | 127 | 17 | Pos |
| KB-8 TO KB-11 SERIES | 170 | 19 | Pos |
| KB-12,KBR-14 SERIES | 152* | 19 | Pos |
| W SERIES | 200 | 25 | Pos |

*-2-BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| GRD | 60-70 | 100-110 | 80 |
| BLD | 75-85 | 100-110 | 80 |
| FBC,RED,INT | | | |
| CON R-6586 | 100-110 | 100.110 | 80 |
| INT-CON S-6749 | 145-155 | 100-110 | 80 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KB-1,KB-2,KB-3 SERIES | OWN GRD214 | 6-3⅜X4⅜ | 25-600 | 10°B | ..... | .020 | F | F | AC | 87S | 18MM | E | D | 4°B | ..... | 107 |
| KB-5,KBS-5 | OWN GRD233 | 6-3⅜X4½ | 25-600 | 10°B | ..... | .020 | F | F | AC | 87S | 18MM | E | D | 4°B | ..... | 108 |
| KB-6,KBS-6,KB-6F | OWN BLD250 | 6-3¼X4½ | 40-1800 | 5°B | ..... | .023 | F | F | AC | 43 | 14MM | E | D | 3°B | ..... | 109 |
| KB-7,KBS-7 | OWN BLD269 | 6-3⅜X4½ | 40-1800 | 5°B | ..... | .023 | F | F | AC | 43 | 14MM | E | D | 3°B | ..... | 115 |
| KB-8,KBS-8 SERIES | OWN RED361 | 6-4⅛X4½ | 40-1800 | 8°B | ..... | .016 | F | F | AC | 75 | 14MM | E | D | 4°B | ..... | 110 |
| KB-10,KBR-10,KBS-10 | OWN RED401 | 6-4⅛X5 | 40-1800 | 8°B | ..... | .016 | F | F | AC | 75 | 14MM | E | D | TC | ..... | 115 |
| KB-11,KBR-11,KBS-11,KB-11F | OWN RED450 | 6-4⅛X5 | 40-1500 | 8°B | ..... | .023 | F | F | AC | 43 | 14MM | E | D | TC | ..... | 122 |
| KB-12,KBR-12,KBS-12,KBR-14 | OWN-CONR6586 | 6-4⅜X5⅛ | 50-2600 | 12°B | ..... | .0165 | .020 | .020 | CH | 5 | 18MM | .030 | D | 5°B | ..... | 120 |
| W-3042-H,W-4064-H,W-6564-OH | OWN-CONS6749 | 6-5⅛X5½ | 50-2600 | 17°B | ..... | .020 | .025 | .020 | CH | 5 | 18MM | .030 | D | 5°B | ..... | 120 |

D-.018-024. E-.028 032. F-.018-.020.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| KB-1,KB-2,KB-3,KB-5,KBS-5,KB-1M | 85 | 1⅞ | 47 | 2¼ |
| KB-3M | 93 | 1 45/64 | 56 | 2 |
| KB-6,KBS-6,KB-6F,KB-7,KBS-7 | 90 | 1⅞ | 40 | 2⅜ |
| KB8,KBR-8,KBS-8,KB-8F,KB-10,KBR-10 | 45 | 1⅞ | 20 | 1⅞ |
| KBS-10,KB-11,KBR-11,KBS-11 0. | | | | |
| KB-11F 1. | | | | |
| KB-12,KBR12,KBS-12,KBR-14 0. | 165 | 1⅝ | 70 | 2¼ |
| 1. | 85 | 1½ | 35 | 2¼ |
| W-3042-H,W-4064-H,W-6564-OH 0. | ..... | ..... | 90 | 2¼ |
| 1. | ..... | ..... | 45 | 2¼ |

1-INNER. 0-OUTER.

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In Degrees) |
|---|---|---|---|---|
| KB-1,KB-1M,KB-2,KB-3 | 1/8-3/8 | 2 | 2-3 | 7½ |
| KB-3M,KB-5,KBS-5 | 1/8-3/8 | 1 | 2-3 | 8 |
| KB-6 TO KBR-14 SERIES | 1/8-3/8 | 1 | 1½-1¾ | 4 |
| W-3042-H,W-4064-H,W-6564-OH | 1/8-3/8 | 1 | 1 | 4 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | (S)N30 OR 40<br>(S)H40 OR 50 | 30@32°TO 90°<br>20W@10° TO 32° | 10W@-10°TO 10° | 140 | 90 | 140A | 90A | 140 | 90 | 140 |

A-WITH 2-SPEED AXLES AND ON ALL WEST COAST MODELS USE 90EP BELOW 30°, 140EP ABOVE 30°. EP-TRUCK-TYPE EXTREME PRESSURE LUBE.

# KENWORTH

## Models 521, 522, 523, 524, 528, 532, 548, 552

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| 521 | 20 | 18 | 38 | 56 |
| 522 | 20 | 18 | 38 | 56 |
| 523 | 20 | 18 | 14 | 56 |
| 524 | 20 | 18 | 20 | 56 |
| 528 | ... | 24 | 14 | 48 |
| 532 | 8 | 16 | 14 | 48 |
| 548 | 20 | 18 | 26 | 56 |
| 552 | 20 | 18 | 26 | 56 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL GASOLINE MODELS (1946-48) | 168* | 21 | POS |
| ALL DIESEL MODELS (1946-48) | 168** | 21 | POS |

*-2 BATTERIES; **-4 BATTERIES.

## TENSIONS

| MODEL | Cylinder Headd (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 521.522.523.524 | 430-450 | 310-330 | 105-115 |
| 528 | SEE DATA UNDER BUDA, PAGE 57 | | |
| 532 | 73-75 | 96-100 | 67-69 |
| 548.552 | 430-450 | 310-330 | 105-115 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders. Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 521.522.523.524.548.552 | CUM HB-600 | 6-4 7/8X6 | 55- | 5°B | ... | ... | .014 | .022 | ... | ... | DIESEL | | ... | ... | ... | 525 |
| 528 | BUD LO525 | 6-4 1/2X5 1/2 | 25-1000 | 10°B | ... | .009 | .008 | .016 | ... | ... | 14MM | .025 | .020 | 10°B | ... | ... |
| 532 | WAU 6MZA | 6-4 1/4X4 1/2 | 40-1500 | 8°A | ... | .004 | .009 | .018 | ... | ... | 14MM | .025 | ... | ... | ... | ... |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 521.522.523.524 | 136 | 2 5/8 | 87 | 2 1/8 |
| 528 | 125-138 AT 1 11/16 LENGTH | | | 2 1/8† |
| 532 | ... | ... | ... | ... |
| 548.552 | 136 | 2 5/8 | 87 | 2 1/8 |

†-FREE LENGTH.

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| 521.522.523.524.528.532.548 (1948) | 1/4-1/8 | 1 | 1 1/4 ± 1/4 | 8 |
| 552 (1948) | 1/4-1/8 | 0 | 5 | 0 |

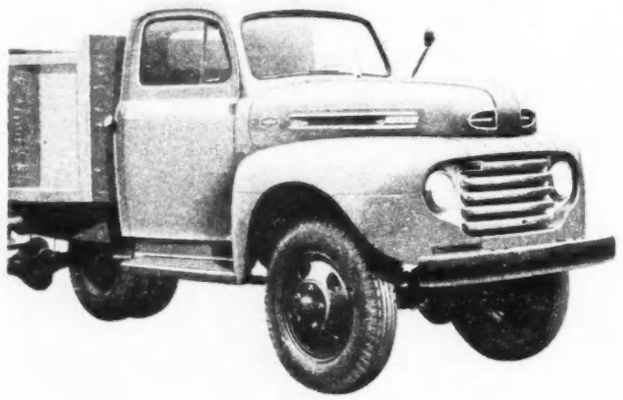
## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| 521.522 | (S)30 | (W)20 | ... | 50 | 50 | 140EP | 90EP | 140 | 90 | 140 |
| 523.524 | (S)30 | (W)20 | ... | 50 | 50 | 140 | 90 | 140 | 90 | 140 |
| 528.532 | (S)40 | (W)30 | ... | 140 | 90 | 140 | 90 | 140 | 90 | 140 |
| 548.552 | (S)30 | (W)20 | ... | 50 | 50 | 140 | 90 | 140 | 90 | 140 |

EP-EXTREME PRESSURE LUBE S-SUMMER W-WINTER

# MARMON-HER.

## Models DVL-4, LD7 and Q, R, MH Series



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| DVL-4 | 4½ | 3 | A | 17 |
| LD7 AND R SERIES | 5 | ..... | ..... | 23 |
| Q SERIES | 9 | ..... | ..... | 33 |
| MH440-4 | 8 | 16 | 15B | 32 |
| MH440-6 | 8 | 16 | 15XB | 32 |
| MH555-4 | 9 | 24 | 21C | 36 |
| MH555-6 | 9 | 24 | 21XC | 36 |

A-FRONT AXLE ONLY.
B-FRONT AXLE-20 PT.
C-FRONT AXLE-24 PT.
X-EACH OF TWO AXLES.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| DVL-4 | 120 | 17 | Pos |
| LD7 AND R SERIES | 100 | 17 | Pos |
| Q SERIES | 120 | 17 | Pos |
| MH440-4, MH440-6 | 160 | 17 | Pos |
| MH555-4, MH555-6 | 120* | 13 | Pos |

*12-VOLT BATTERY

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| DVL-4 | 60-65 | 65-70 | 50-55 |
| LD7, R & Q SERIES | 55-60 | 95-105 | 45-50 |
| MH440-4, MH440-6 | 60 | 70* | 105 |
| | | 105** | 53† |
| MH555-4, MH555-6 | 75 | 105* | 105 |
| | | 123** | 115‡ |

*-CENTER AND REAR. **-FRONT AND INTERMEDIATE.
†-WITH ⅜ IN. CON ROD. ‡-WITH ½ IN. CON ROD.

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.H. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DVL-4 (1948) | WILLYS-CJ-2A | 4-3⅛X4⅜ | 50-70 | 3°B | ..... | .017 | .014 | .014 | AL | AN-7 | 14MM | .030 | .020 | TC | TC | 115 |
| LD7 AND R SERIES | FORD 239 | 8-3⅛X3¾ | 57-2000 | TC | ..... | .015 | A | B | CH | H-9 | 14MM | C | .015 | 2°B | ..... | 110 |
| Q SERIES | FORD 337 | 8-3⅛X4¼ | 50-2000 | 14°B | ..... | 0 | 0 | 0 | CH | H-9 | 14MM | C | .015 | 4°B | ..... | 112 |
| MH440-4, MH440-6 (1946-48) | HERWXLC3 | 6-4⅛X4½ | 36-1600 | 2°A | ..... | .010 | .006 | .010 | CH | H-10 | 14MM | .025 | .020 | TC | TC | .... |
| MH555-4, MH555-6 (1946-48) | HERWXC | 6-4⅛X5¼ | 26-2600 | 2°A | ¾A | .010 | .006 | .010 | CH | N08 | 18MM | .025 | .020 | TC | TC | 103 |

A-.010-.012 COLD. B-.014-.016 COLD. C-.029-.032.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| DVL-4 | 116 | 1⅜ | 50 | 2-7/64 |
| LD7 AND R SERIES | 76-80 | 1.84 | 37-40 | 2.13 |
| Q SERIES | 140-154 | 1.32 | 62-63 | 1.68 |
| MH440-4, MH440-6, MH555-4, MH555-6 | 102 | 26 | 50 | 2-35/64 |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| DVL-4 | 0-⅛ | ¾ | 2 | 9 |
| LD7 | ⅛-⅜ | 0-¼ | 1-2 | 8½ |
| R SERIES | 0-⅛ | 0 | 1¼ | 0 |
| Q SERIES | ⅛-⅜ | ¼ | 5 | 8 |
| MH440-4, MH440-6 | ⅛-⅜ | 0 | 0-1 | 2 |
| MH555-4, MH555-6 | ⅛-⅜ | 0 | 0-1 | 1½ |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| DVL-4 | (S) 30 | (W) 20 | 10W BELOW 10° | 140 | 90 | 140A | 90A | 140 | 140 | 140 |
| LD7, R SERIES | 30 ABOVE 32° | 20W 10°-32° | 10W -10°-10°* | 140 | 90 | 90B | 90B | 140 | 140 | 140 |
| Q SERIES | 30 ABOVE 32° | 20W 10°-32° | 10W -10°-10°* | 140 | 90 | 140B | 140B | 140 | 140 | 140 |
| MH SERIES | (S) 40 | (W) 20 | 10W BELOW 10° | 140 | 90 | 140B | 90B | 140 | 140 | 140 |

* BELOW -10°, USE 10% KEROSENE. A-FRONT AXLE ONLY. B-SAME FOR FRONT AXLE. (S) SUMMER. (W) WINTER.

SERVICE DATA

# OSHKOSH

## Models W312, W1700, W700, W703, W705, W906, and W1600, W2200 Series

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | Lubricant Capacity: Engine Quarts | Lubricant Capacity: Transmission Pints | Lubricant Capacity: Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| W-312 | 7 | 16A | 21K | 36 |
| W-1700 | 10 | 24A | 25B | 46 |
| W-700 | 10 | 24A | 15C | 46 |
| W-703, W-703-D, W-705 | 13 | 24A | 15C | 46 |
| W-906 | 18 | 22D | 24E | 40 |
| W-2200, W-2201 | 24 | 22D | 24F | 80 |
| W-2204 | 24 | 22D | 40F | 80 |
| W-703-6X6 | 13 | 24G | 32H | 46 |
| W-1600 SERIES | 24 | 22D | 25C | 84 |

A-AUX. TRANS. 7
B-FRONT AXLE 24
C-ALSO FRONT AXLE
D-AUX. TRANS. 17
E-FRONT AXLE 25
F-FRONT AXLE 36
G-AUX. TRANS. 12
H-FRONT AXLE 15
K-FRONT AXLE 11

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| W-703-D, W-906, W-2204, W-1600, (DIESEL SERIES) | 204 | 25 | POS |
| W-312, W-1700, W-700, W-703, W-705, W-2200 W-2201, W-1600 (GASOLINE SERIES) | 153 | 19 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| W-312 | 85 | NOTE 1 | 53 |
| W-1700, W-700 | 85 | NOTE 2 | 115 |
| W-703, W-705 | 100 | 175 | 158 |
| W-703-D | NOTE 3 | 175 | 158 |
| W-906, W-1600-C | 430-450 | 310-330 | 105-115 |
| W-2200, W-2201 | 3/8"-95-105 | 245-275 | 150-160 |
| W-2204, W-1600-B | 7/8"-150-160 | | |

NOTE 1-FRONT INTERMEDIATE 105; CTR. & REAR 70
NOTE 2-FRONT & INTERMEDIATE 123; CTR. & REAR 105
NOTE 3-3/8"-175. 1"-280

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at or R.P.M. | Intake Valve Opens B-Before A-After: °TC | Intake Valve Opens B-Before A-After: Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | Operating Tappet Clearance (Hot unless noted): Intake | Operating Tappet Clearance (Hot unless noted): Exhaust | Spark Plug: Make | Spark Plug: Type | Spark Plug: Size | Spark Plug: Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth° TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W-312 | HER WXLC0-3 | 6-4 1/2 X4 3/4 | 26-1600 | 2°A | ... | .012 | .012 | .016 | CH | J-10 | 14MM | .025 | .020 | ... | ... | ... |
| W-1700 | HER RXC | 6-4 3/8 X5 1/2 | 36-1600 | 2°A | ... | .010 | .010 | .016 | CH | 1COM | [illegible] | .025 | .020 | ... | ... | 110 |
| W-700 | HER RXC0 | 6-4 3/8 X5 1/2 | 36-1600 | 2°A | ... | .010 | .010 | .016 | CH | 1COM | [illegible] | .025 | .020 | ... | ... | 110 |
| W-703, W-705, W-703-6X6 | HER RXLD | 6-4 3/8 X5 1/2 | 36-1600 | 2°A | ... | .010 | .010 | .016 | CH | 1COM | [illegible] | .025 | .020 | ... | ... | 110 |
| W-703-D | HER DRXC | 6-4 3/8 X5 1/2 | 30-1200 | 12°B | ... | .016 | .016 | .016 | DIESEL | | | | | | | |
| W-906, W-1600-CD SERIES | CUM HB-600 | 6-4 1/2 X6 | 35-1800 | 5°B | ... | ... | .014 | .022 | DIESEL | | | | | | | 525 |
| W-1600-CDS SERIES | CUM HBS-600 | 6-4 1/2 X6 | 35-1800 | 77°B | ... | ... | .016 | .028 | DIESEL | | | | | | | 525 |
| W-2200 | BUDA 6M0-779 | 6-5 1/2 X6 | 35-1800 | 20°B | ... | .018 | .015 | .015 | CH | 6COM62 | 18MM | .027 | .018/.024 | ... | ... | 125 |
| W-2201, W-1600-BG | BUDA 6M0-893 | 6-5 3/8 X6 | 35-1800 | 20°B | ... | .018 | .015 | .015 | CH | 6COM62 | 18MM | .027 | .018/.024 | ... | ... | 125 |
| W-2204, W-1600-BD SERIES | BUDA 6DC-844 | 6-5 1/2 X6 | 35-1800 | 20°B | ... | .018 | .015 | .015 | DIESEL | | | | | | | 390 |

## VALVE SPRINGS

| MODEL | Valve Open: Pressure (Ave.) Pounds | Valve Open: Length Inches | Valve Closed: Pressure (Ave.) Pounds | Valve Closed: Length Inches |
|---|---|---|---|---|
| W-312, W-1700, W-700, W-703, W-705, W-703-6X6 | 102 | 2 5/8 | 50 | 2 35/64 |
| W-703-D O | 48 | 1.449 | 27 | 1.844 |
| W-703-D I | 30 | 1.355 | 17 | 1.750 |
| W-906, W-1600-CD, W-1600-CDS | 129-143 | 2 | 83-91 | 2 1/16 |
| W-2200, W-2201, W-1600-BG, W-2204, W-1600-BD SERIES | 145-155 | 2 1/8 | 62-68 | 2 1/4 |

O-OUTER I-INNER

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| W-312, W-1700, W-700, W-703, W-705, W-703D, W-703-6X6 | O-1/8 | 1° | 1° | 3° |
| W-906, W-2200, W-2201, W-2204, W-1600 SERIES | O-3/8 | 1/2° | 1° | 3° |

## LUBRICATION

| MODEL | Engine: Viscosity and Temperature Range | Transmission: Summer | Transmission: Winter | Rear Axle: Summer | Rear Axle: Winter | Steering Gear: Summer | Steering Gear: Winter | Universal Joint |
|---|---|---|---|---|---|---|---|---|
| W-312 | 40 ABOVE 40° / 30@ 10° TO 40° / 20 BELOW 10° | 140A | 90A | 140HYP. | 90HYP. | 140A | 140A | C |
| W-1700, W-700, W-703, W-705, W-703-6X6 | 40 ABOVE 40° / 30@ 10° TO 40° / 20 BELOW 10° | 140A | 90A | 140A | 90A | 140A | 140A | C |
| W-703-D | 40 ABOVE 60° / 30@ 32° TO 60° / 20 BELOW 32° | 140A | 90A | 140A | 90A | 140A | 140A | C |
| W-906, W-1600-CD SERIES | 30 ABOVE 80° / 20@ 20° TO 80° / 10 BELOW 20° | 140A | 90A | 140A | 90A | 140A | 140A | C |
| W-2200, W-2201, W-1600-BG, W-2204, W-1600-BD SERIES | 40 ABOVE 90° / 30@ 32° TO 90° / 20 BELOW 32° | 140A | 90A | 140A | 90A | 140A | 140A | C |

A-STRAIGHT MINERAL OIL GEAR LUBRICANT; SAME FOR FRONT AXLE AND TRANSFER CASE. HYP.-HYPOID GEAR LUBRICANT, FRONT AND REAR AXLES. C-LIGHT WEIGHT CHASSIS LUBRICANT

# PETERBILT

SERVICE DATA

## Models 270DD, 344DT, 345DT, 354DT, 355DT

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY | | | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| | Engine Quarts | Transmission Pints | Rear Axle Pints | |
| 344DT (1944-48)..... | 20 | 18 | 14EA | 60 |
| 345DT, 354DT, 355DT (1944-48) | 20 | 18 | 20EA | 60 |
| 270D (1944-48)..... | 20 | 18 | 26 | 60 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL MODELS (1944-48)..... | 152* | 19 | Pos |

*-2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS..... | 430-450 | 310-330 | 105-115 |

## TUNE UP

| MODEL | Standrad Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth°TC B-Before After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| 270DD 344DT, 354DT, 345DT, 355DT, (1944-48)..... | CUM HB600 | 6-4⅛X6 | 55- | 15°A | ..... | ..... | .025 | .025 | DIESEL | ..... | ..... | .... | .... | ..... | ..... | ..... |

## VALVE SPRINGS

| MODEL | VALVE OPEN | | VALVE CLOSED | |
|---|---|---|---|---|
| | Pressure (Ave.) Pounds | Length Inches | Pressure (Ave.) Pounds | Length Inches |
| 344DT, 345DT, (1944-48)..... | 136 | 2⅛ | 87 | 2⅜ |
| 270D, 345DT, 355DT (1945-48)..... | 136 | 2⅛ | 87 | 2⅜ |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| ALL MODELS (1944-48)..... | 0-⅛ | 1 | 1½ | 8 |

## LUBRICATION

| MODEL | ENGINE | | | TRANSMISSION | | REAR AXLE | | STEERING GEAR | | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| | Viscosity and Temperature Range | | | Summer | Winter | Summer | Winter | Summer | Winter | |
| ALL MODELS (1944-48)..... | 50 ABOVE 90° | 40@60°TO 90° | 30@10° TO 60° | 140 | 90 | 140 | 90 | 140 | 90 | 140 |

# REO

## Models C-19, C-21, C-22, C-23, C-25, 30, 31

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| C-19 | 8 | ... | ... | 17½ |
| C-21,C-22 | 8 | ... | ... | 20 |
| C-23 | 8 | ... | ... | 27 |
| C-25 | 8 | ... | ... | 28 |
| 30,31 | 14 | ... | ... | 47 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| C-19,C-21,C-22,C-25* | 136 | 17 | POS |
| C-23,30*,31* | 153 | 19 | POS |

*-2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| C-19,C-21,C-22 | 83-100 | 67-75 | 70-75 |
| ALL OTHERS | SEE CONTINENTAL, PG. 58 | | |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-19 | OWN GC245 | 6-3½X4½ | 40 | 5°B | ... | .012 | .008 | .010 | CH | J-6* | 14MM | .032 | A | 8°B | 3B | 105 |
| C-21 | OWN GC288 | 6-3½X5 | 40 | 5°B | ... | .012 | .008 | .010 | CH | J-6* | 14MM | .032 | A | 8°B | 3½B | 105 |
| C-22 | OWN GC310 | 6-3⅝X5 | 40 | 5°B | ... | .012 | .008 | .010 | CH | J-6* | 14MM | .032 | A | 8°B | 3½B | 105 |
| C-23 | CON T-6371 | 6-4⅛X4⅝ | 40-60 | 16°B | ... | .022 | .017 | .017 | CH | 8COM | 18MM | .030 | A | 6°B | ... | 110 |
| C-25 | CON T-6427 | 6-4⅜X4⅝ | 40-60 | 16°B | ... | .022 | .017 | .017 | CH | 8COM | 18MM | .030 | A | 6°B | ... | 110 |
| 30 | CON R-6513 | 6-4½X5⅝ | 40-60 | 12°B | ... | .022 | .018-.020 | .018-.020 | CH | 8COM | 18MM | .030 | A | 6°B | ... | 105 |
| 31 | CON R-6602 | 6-4⅝X5⅝ | 40-60 | 12°B | ... | .022 | .018-.020 | .018-.020 | CH | 8COM | 18MM | .030 | A | 6°B | ... | 105 |

*-IN WINTER USE J-8 WITH .028 GAP. A-.018 TO .024

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| C-19,C-21,C-22 | 135-140 | 2⅛ | 50-54 | 2⅜ |
| C-23,C-25 .0 | 124-134 | 1.458 | 67.5-74.5 | 1⅝ |
| .1 | 54-64 | 1⅜ | 11.3-14.3 | 1⅝ |
| 30,31 .0 | 67-73 | 2¼ | 160-170 | 1⅝ |
| .1 | 33-37 | 2¼ | 82-88 | 1⅝ |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| C-19 | ⅛-¼ | 1 | 2 | 8 |
| C-21,C-22 | ⅛-¼ | 1 | 2¼ | 8 |
| C-23,C-25 | ⅛-¼ | 1 | 1¼ | 8 |
| 30,31 | ⅛-¼ | 1 | 2 | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | 30 ABOVE 32° | 20W 0° TO 32° | 10W BELOW 0° | 140 | 90 | 140A | 90 | 90 | 90 | ... |

A-WITH DOUBLE REDUCTION AXLE, 90

# STERLING

## Series DD, HBS, HC, HCS, HD, HDS, HWS

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| HD97 | 8 | 16 | 31 | 34 |
| HD105 | 8 | 16 | 30 | 34 |
| DD115 | 10 | 24A | 16B | 36 |
| HD115 | 10 | 24 | 38 | 36 |
| HD145 | 10 | 24 | 24 | 36 |
| HD115H | 20 | 17 | 38 | 56 |
| DD145H | 20 | 17G | 16B | 56 |
| HD145H | 20 | 17 | 24 | 56 |
| HC97 | 8 | 16 | 12C | 34 |
| HC105 | 8 | 16D | 13C | 34 |
| HC115.HC144.HC147 | 10 | 24D | 12C | 36 |
| HC155 | 10 | 24D | 20C | 36 |
| HC175.HC250 | 18 | 17D | 20C | 62 |
| HC115H | 20 | 17E | 20C | 56 |
| HC175H.HC250H | 20 | 17E | 20C | 56 |
| HBS130 | 8 | 16 | 22F | 34 |
| HDS140 | 8 | 16 | 14F | 34 |
| HWS160 | 10 | 24 | 14F | 36 |
| HWS235 | 18 | 17 | 32F | 62 |
| HWS160H | 20 | 17 | 17F | 56 |
| HWS235H | 20 | 17 | 32F | 56 |
| HCS195 | 10 | 24 | 24C | 56 |
| HCS265.HCS297.HCS330 | 18 | 17 | 15H | 62 |
| HCS195H | 20 | 17 | 24C | 56 |
| HCS265H.HCS297H.HCS330H | 20 | 17 | 15H | 56 |

A-TRANSFER CASE-4 PT.
B-FRONT AXLE-24 PT.
C-JACKSHAFT CAPACITY
D-AUX. TRANS.-12 PT.
E-AUX. TRANS.-17 PT.
F-EACH AXLE
G-TRANSFER CASE-5 PT.
H-POUNDS

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| HD97.HD105.HC97.HC105.HBS130.HDS140 | 73-75 | 96-100 | 67-69 |
| DD115.HD115.HD145.HC115.HC144.HC147.HC155.HWS160 | 73-75 | 129-133 | 121-125 |
| HCS195 | 130-134 | 130-134 | 121-125 |
| HC175.HC250.HWS235.HCS265.HCS297.HCS330 | 130-134 | 242-250 | 73-75 |
| HD115H.DD145H.HD145H.HC115H.HC175H.HC250H.HWS160H.HWS235H.HCS195H.HCS265H.HCS297H.HCS330H | 430-450 | 310-330 | 105-115 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| HD97.HD105.DD115.HD115.HD145.HC97.HC105.HC115.HC144.HC147.HC155.HBS130.HDS140.HWS160 | 170 | 69 | Pos |
| HC175.HC250.HWS235.HCS195.HCS265.HCS297.HCS330 | 204* | 75 | Pos |
| HD115H.DD145H.HD145H.HC115H.HC175H.HC250H.HWS160H.HWS235H.HCS195H.HCS265H.HCS297H.HCS330H | 170* | 63 | Pos |

*-2 BATTERIES

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HD97.HD105.HC97.HC105.HBS130.HDS140 | WAU 6MZA | 6-4½X4¾ | 40-1500 | 8°B | 3B | .008 | .008-10C | .018-21C | AL | BT4 | 18MM | .025 | .018 | VAR | ... | 110 |
| DD115.HD115.HD145.HC115.HC144.HC147.HC155.HWS160 | WAU 6SRKR | 6-4⅝X5½ | 40-1500 | 8°A | 3A | .004 | .008-10C | .024-26C | AL | TT8 | ⅞ | .025 | .018 | VAR | ... | 90 |
| HCS195 | WAU 140GK | 6-4½X5½ | 40-1500 | 5°A | 1¾A | .010 | .010-12C | .016-18C | AL | BT4 | 18MM | .025 | .018 | VAR | ... | 130 |
| HC175.HC250.HWS235.HCS265.HCS297.HCS330 | WAU 145GK | 6-5½X6 | 40-1500 | 5°A | 2A | .006 | .009-11C | .024-26C | AL | BT4 | 18MM | .025 | .018 | VAR | ... | 130 |
| HD115H.DD145H.HD145H.HC115H.HC175H.HC250H.HWS160H.HWS235H.HCS195H.HCS265H.HCS297H.HCS330H | CUM HB600 | 6-4⅞X6 | 35-1800 | 5°B | ... | ... | .014 | .022 | DIESEL | | | | | | | 525 |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| HD97.HD105.HC97.HC105.HBS130.HDS140 | 101 | 1⅜ | 64 | 2⅛ |
| DD115.HD115.HD145.HC115.HC144.HC147.HC155.HWS160 | 101 | 2.390 | 66 | 2.765 |
| HCS195 O | 86 | 1⅜ | 31 | 2⅛ |
| HCS195 I | 55 | 1⅛ | 26 | 1⅜ |
| HC175.HC250.HWS235 O | 118 | 2⅛ | 48 | 2⅜ |
| HCS265.HCS297.HCS330 I | 81 | 2⅛ | 32 | 2⅜ |
| HD115H.DD145H.HD145H.HC115H.HC175H.HC250H.HWS160H.HWS235H.HCS195H.HCS265H.HCS297H.HCS330H | 129-143 | 2 | 83-91 | 2⅛ |

I-INNER O-OUTER

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| HD97.HD105.HC97.HC105.HBS130.HDS140.HD115.HD145.HD115H.HD145H.HC115.HC144.HC147.HC155.HC115H.HWS160.HWS160H.HCS195.HCS195H | 1/4+1/8 | 1° | VAR | 8° |
| DD115.DD145H | 1/4+1/8 | 0° | VAR | 0° |
| HC175.HC250.HC175H.HC250H.HWS235.HWS235H.HCS265.HCS297.HCS330.HCS265H.HCS297H.HCS330H | 3/8+1/8 | 1° | VAR | 8° |

## LUBRICATION

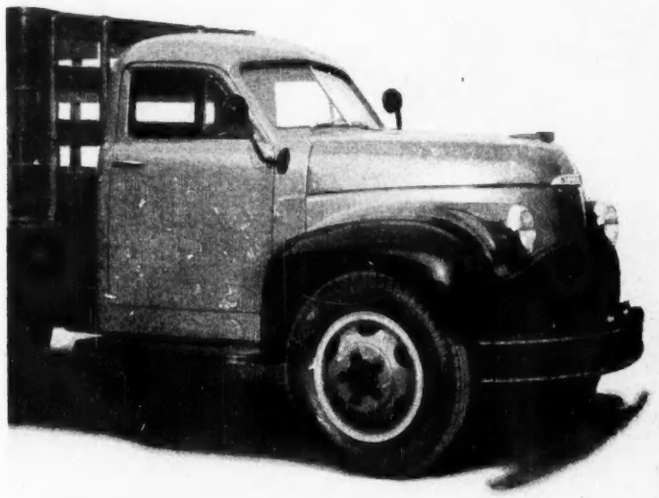
| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| HD97.HD105.HD115 | 40@50°-70°* | 30@30°-50° | 20W BELOW 30° | 140 | 90 | 140HYP | 90HYP | 140 | 90 | 140 |
| DD115.HD145.HC97.HC105.HC115.HC144.HC147.HC155.HBS130.HDS140.HWS160.HCS195 | 40@50°-70°* | 30@30°-50° | 20W BELOW 30° | 140 | 90 | 140 | 90 | 140 | 90 | 140 |
| HD115H | 30 ABOVE 80° | 20@20°-80° | 10 BELOW 20° | 140 | 90 | 140HYP | 90HYP | 140 | 90 | 140 |
| DD145H.HC175H.HC250H.HWS235H | 30 ABOVE 80° | 20@20°-80° | 10 BELOW 20° | 140 | 90 | 140 | 90 | 140EP | 140EP | 140 |
| HD145H.HC115H.HWS160H.HCS195H | 30 ABOVE 80° | 20@20°-80° | 10 BELOW 20° | 140 | 90 | 140 | 90 | 140 | 90 | 140 |
| HC175.HC250.HWS235 | 40@50°-70° | 30@30°-50° | 20W BELOW 30° | 140 | 90 | 140 | 90 | 140EP | 140EP | 140 |
| HCS265.HCS297.HCS330 | 40@50°-70°* | 30@30°-50° | 20W BELOW 30° | 140 | 90 | (SS) | (SS) | 140EP | 140EP | 140 |
| HCS265H.HCS297H.HCS330H | 30 ABOVE 80° | 20@20°-80° | 10 BELOW 20° | 140 | 90 | (SS) | (SS) | 140EP | 140EP | 140 |

*-50 ABOVE 70° EP-EXTREME PRESSURE GEAR LUBRICANT HYP-HYPOID GEAR LUBRICANT (SS)-SPECIAL STERLING LUBRICANT

SERVICE DATA

# STUDEBAKER

## Models M5, M15, M15A, M16



## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| M5 (1941-48) | 5 | 2½A | 3 | 10½ |
| M15,M15A (1941-48) | 5 | 6 | 6⅝ | 10½ |
| M16 (1941-48) | 6 | 6 | 7B | 13 |

A-WITH OVERDRIVE-4½ PT.
WITH 4-SPEED TRANSMISSION-6 PT.
B-WITH 2-SPEED AXLE-12 PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Numbers of Plates | Terminal Grounded |
|---|---|---|---|
| M5,M15,M16 (1946-48) | 90 | 15 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| M5,M15,M15A | 46-50 | 88-93 | 28-32 |
| M16 | 80-85 | 88-93 | 52-54 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheels Teeth °TC B-Before A-After | Comp Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M5 (1941-48) | OWN 1M | 6-3X4 | 40 MIN. | 15°B | 5B | .020 | .016C | .016C | CH | J9† | 14MM | .025 | .020 | 2°B | 4B | 105 |
| M15 (1941-48),M15A (1946-48) | OWN 2M | 6-3X4 | 40 MIN. | 15°B | 5B | .020 | .016C | .016C | CH | J9† | 14MM | .025 | .020 | 2°B | 4B | 105 |
| M16 (1941-48) | OWN 3M | 6-3⅜X4⅝ | 40 MIN. | 15°B | 5½B | .020 | .016C | .016C | CH | J9† | 14MM | .025 | .020 | 2°B | 4B | 105 |

†-8A COM. 18MM PLUGS IN 1941 ONLY. C-COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| M5,M15,M15A (1941-48) | 77-85 | 1 7/16 | 37-41 | 1⅝ |
| M16 (1941-48) | 125-135 | 1 7/16 | 54-60 | 2⅛ |

## FRONT END

| MODEL | TOE-IN (in inches unless otherwise shown) | CASTER (in degrees) | CAMBER (in degrees) | KING PIN SLANT (in degrees) |
|---|---|---|---|---|
| M5 (1941-48) | 1/8-1/4 | 1 | ½-1 | 7½ |
| M15,M15A,M16 (1941-48) | 1/8-1/4 | 1 | ½-1 | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| M5 (1941-48) | 30@ 32° TO 90°* | 20@ 10° TO 32° | 10 BELOW 10° | 90A | 90A | 90HYP. | 90HYP. | D | D | C |
| M15,M15A,M16 (1941-48) | 30@ 32° TO 90°* | 20@ 10° TO 32° | 10 BELOW 10° | 140 | 90B | 140 | 90B | D | D | C |

*-USE 40 FOR HIGH SPEED ABOVE 90° A-IF EQUIPPED WITH OVERDRIVE USE 90 MINERAL GEAR LUBE OR 50 ENGINE OIL B-BELOW 32° ONLY
D-SPECIAL LUBES APPROVED BY ROSS TOOL & GEAR CO. C-LIGHT-WEIGHT PRESSURE GUN GREASE HYP-TRUCK-TYPE HYPOID LUBE

# WALTER

## Models FGB, FGR, FC, FCK, FKM, FN, FZM

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY | | | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| | Engine Quarts | Transmission Pints | Rear Axle Pints | |
| FGB, FGR, (1943-48) | 18 | 32 | 6 | 50 |
| FC, FCK, (1936-48) | 10 | 25 | 7 | 42 |
| FKM, (1936-48) | 10 | 17 | 5 | 38 |
| FN, FZM, (1936-48) | 8 | 17 | 5 | 32 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| FN, FZM (1943-48) | 160 | 17 | Pos |
| FC, FCK, FKM (12-VOLT) (1943-48) | 120* | 15 | Pos |
| FCE, FCR, (12-VOLT) (1943-48) | 160* | 17 | Pos |

*-2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings Bearings (pounds-feet) |
|---|---|---|---|
| FN, FZM | 73-75 | 96-100 | 67-69 |
| FKM, FCK, FC, FCR | 73-75 | 129-133 | 121-125 |
| FGB, FGR | 130-134 | 242-250 | 73-75 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs° TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| FN, FZM (1943-48) | WAU MZR | 6-4¼x4⅜ | 40-1500 | 8°A | 3A | .004 | .008-10C | .014-16C | OPT | ..... | 18MM | .025 | .018 | VAR | ..... | 90 |
| FKM, FCK, FC, FCR, (1943-48) | WAU SRKR | 6-4⅜x5⅛ | 40-1500 | 8°A | 3A | .004 | .008-10C | .014-16C | OPT | ..... | ⅞ | .025 | .018 | VAR | ..... | 90 |
| FGB, FGR, (1943-48) | WAU 145GK | 6-5¼x6 | 40-1500 | 5°A | 2A | .006 | .009-11C | .024-26C | OPT | ..... | 18MM | .025 | .018 | VAR | ..... | 130 |

C-COLD

## VALVE SPRINGS

| MODEL | VALVE OPEN | | VALVE CLOSED | |
|---|---|---|---|---|
| | Pressure (Ave.) Pounds | Length Inches | Pressure (Ave.) Pounds | Length Inches |
| FN, FZM | 101 | 1⅜ | 64 | 2⅜ |
| FKM, FC, FCK, FCR | 94 | 2 25/64 | 59 | 2 49/64 |
| FGB, FGR ..... O. | 158 | 2⅜ | 67 | 2⅛ |
| I. | 100 | 2⅛ | 42 | 2⅛ |

I-INNER, O-OTHER

## FRONT END

| MODEL | TOE-IN (In Inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| FN, FKM, FZM, FCK, FC, FCE, FCR, (1936-48) | N⅛ | 1½ | 5 | 2 |

N-NEGATIVE

## LUBRICATION

| MODEL | ENGINE | | | TRANSMISSION | | REAR AXLE | | STEERING GEAR | | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| | Viscosity and Temperature Range | | | Summer | Winter | Summer | Winter | Summer | Winter | |
| ALL MODELS (1936-48) | (S) 50 | (W) 30 | ..... | 250 | 140 | 250 | 140 | 140 | 140 | 90 |

SERVICE DATA

# WARD LaFRANCE

## Series D-1, D-1B, D-1C, D-2B, D-2K, D-2Z, D-3, D-3F, D-5

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 59.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| D-1 | 8A | 16 | 31 | 36 |
| D-1B | 10A | 16 | 41 | 56 |
| D-1C | 8A | 16 | 38 | 36 |
| D-1 DIESEL | 9A | 16 | 31 | 38½ |
| D-2B,D-2BF,D-2BH | 10A | 24 | 38 | 56 |
| D-2BG | 10A | 24 | 34 | 56 |
| D-2K,D-2KF,D-2KH | 10A | 24 | 38 | 61 |
| D-2KG | 10A | 24 | 34 | 61 |
| D-2Z,D-2ZF,D-2ZH | 10A | 24 | 38 | 61 |
| D-2ZG | 10A | 24 | 34 | 61 |
| D-3,D-3F,D-3H | 14A | 24 | 38 | 60 |
| D-3G | 14A | 24 | 34 | 60 |
| D-3S,D-3SG | ... | 24 | 38 | ... |
| D-3SH | ... | 24 | 34 | ... |
| D-5 | 20 | 24 | 38 | 56 |

A-PLUS 1 QT. PER FILTER

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL GASOLINE MODELS | 152* | 19 | POS |
| ALL DIESEL MODELS | 152** | 19 | POS |

*-2 BATTERIES **-4 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | SEE ENGINES, PG. 56-59 | | |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheels Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D-1,D-1C (1948) | CON T-6427 | 6-4⅛X4⅜ | 40-60 | 16°B | ... | .022 | .017 | .017 | CH | 6 COM | 18MM | .025 | ... | ... | ... | ... |
| D-1 DIESEL | BUDA 6DT-468 | 6-4½X5½ | 35-1600 | 20°B | ... | .009 | .009 | .012 | ... | | | | | | | ... |
| D-1B,D-2B,-BF,-BG,-BH | CON 22R-698 | 6-4½X5¼ | 40-50 | 5°B | ... | .014 | .014 | .020 | ... | 8 COM | 18MM | .025 | .020 | TC | ... | 100 |
| D-2K,-KF,-KG,-KH | WAU 140-GK | 6-4½X5½ | 40-1500 | 5°A | ... | .010 | .010 | .0135 | ... | 6 COM | 18MM | .025 | .018 | TC | ... | 130 |
| D-2Z,-ZF,-ZG,-ZH | WAU 140-GZ | 6-4⅜X5½ | 40-1500 | 5°A | ... | ... | .010 | .0135 | ... | 8 COM | 18MM | .025 | .018 | TC | ... | ... |
| D-3,-F,-G,-H | CON R-6572 | 6-4½X5⅜ | 50-60 | 12°B | ... | .0245 | .020 | .020 | ... | 5 COM | 18MM | .025 | .020 | 5°B | ... | 120 |
| D-3S,-SF,-SG,-SH | CON R-6602 | 6-4½X5⅜ | 50-60 | 12°B | ... | .0245 | .020 | .020 | ... | 5 COM | 18MM | .025 | ... | ... | ... | 120 |
| D-5 DIESEL | CUM HB-600 | 6-4⅜X6 | 30-40 | 5°B | ... | ... | .014 | .022 | ... | | | | | | | 525 |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| D-1,D-1C O | 129 | 1.458 | 71 | 1⅝ |
| I | 57 | 1⅝ | 12.8 | 1⅝ |
| D-1 DIESEL (6DT-468) | 129 | 2⅛ | 83-91 | 2⅛ |
| D-1B,D-2B SERIES O | 108-112 | 1⅞ | 56.7 | 2¼ |
| I | 50 | 1⅝ | 22.4 | 2¼ |
| D-2K,D-2Z SERIES O | 86 | 1⅝ | 31 | 2⅛ |
| I | 55 | 1⅝ | 26 | 1⅝ |
| D-3,D-3S SERIES O | 165 | 1⅝ | 75 | 2¼ |
| I | 85 | 1⅝ | 35 | 2¼ |
| D-5 | 129-143 | 2⅛ | 83-91 | 2⅛ |

I-INNER O-OUTER

## FRONT END

| MODEL | TOE-IN (in inches unless otherwise shown) | CAMBER (in degrees) | CASTER (in degrees) | KING PIN SLANT (in degrees) |
|---|---|---|---|---|
| ALL MODELS | 1/16-1/8 | ¾-1¼ | ¼-1½ | 8 |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| D-1 | (S) 40 | (W) 10 | ... | 140A | 90A | 140A | 90A | 140 | 140 | ... |
| D-1C | (S) 40 | (W) 10 | ... | 140A | 90A | 140EP | 90EP | 140 | 140 | ... |
| D-1 DIESEL | 40 ABOVE 90° | 30@ 32°-90° | 20@-10°-32°* | 140A | 90A | 140A | 90A | 140 | 140 | ... |
| D-2B | 40 ABOVE 32° | 30@ 0°-32 | 10@-10°-0° | 140A | 90A | 140EP | 90EP | 140 | 140 | ... |
| D-2K,D-2Z,D-3,D-3S SERIES | (S) 40 | (W) 20 | ... | 140A | 90A | 140EP | 90EP | 140 | 140 | ... |
| D-5 | 30@ 80°-100°** | 20@ 20°-80° | 10 BELOW 20° | 140A | 90A | 140EP | 90EP | 140 | 140 | ... |

*-USE 30 IF ENGINE RUNS 16 HRS. OUT OF 24 **-USE 40 IN VERY HOT WEATHER A-USE STRAIGHT MINERAL OIL EP-EXTREME PRESSURE LUBE S-SUMMER W-WINTER

# WHITE

## Series WB14, WB20, WB22, WB26, WB28 and models WB2264, WB2864, WB3264

NOTE: SPECIFICATIONS ARE FOR STANDARD MODELS. IF OPTIONAL ENGINE IS USED, SEE DATA FOR APPROPRIATE ENGINE ON THIS PAGE OR UNDER ENGINE MANUFACTURER'S LISTING ON PAGES 56 TO 58.

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| WB-14 | 12 | 13 | 11 | 28 |
| WB20, WB20T | 12 | 13 | 11 | 29 |
| WB22, WB22T | 12 | 20 | 22 | 29½ |
| WB26 | 12 | 20 | 25 | 29½ |
| WB28, WB28T | 15 | 24 | 22 | 41 |
| WB2264 | 12 | 20 | 22EA | 28½ |
| WB2864 | 15 | 24 | 14EA | 41 |
| WB3264 | 15 | 24 | 26EA | 41 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| WB14, WB20, WB20T, WB22, WB22T, WB26, WB2264 | 119 | 15 | POS |
| WB28, WB28T, WB2864, WB3264 | 119* | 15 | POS |

*-2 BATTERIES

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 100A ENGINE | 85-90 | 70-75 | 48-52 |
| 120A, 140A, ENGINES | 85-90 | 70-75 | 48-52 |
| 150A, ENGINE | 85-90 | 70-75 | 48-52 |
| 260A, 280A, ENGINES | 110 | 70-75 | 70-75 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WB14 | 100A | 6-3⅞X4½ | 35 MAX | 15°B | ..... | 0 | 0 | 0 | CH | J6 | 14MM | D | E | 7°B | ..... | |
| WB20, WB20T | 120A | 6-3⅞X4½ | 35 MAX | 15°B | ..... | 0 | 0 | 0 | CH | J6 | 14MM | D | E | 6°B | ..... | |
| WB22, WB22T | 140A | 6-3⅞X5⅛ | 35 MAX | 15°B | ..... | 0 | 0 | 0 | CH | J6 | 14MM | D | E | 7°B | ..... | |
| WB26, WB2264 | 150A | 6-4X5⅛ | 35 MAX | 15°B | ..... | 0 | 0 | 0 | CH | J6 | 14MM | D | F | 3°B | ..... | |
| WB28, WB28T, WB2864 | 260A | 6-4⅜X5 | 45 MAX | 15°B | ..... | 0 | 0 | 0 | CH | 6COM | 18MM | .025 | F | 9°B | ..... | |
| WB3264 | 280A | 6-4⅜X5 | 45 MAX | 15°B | ..... | 0 | 0 | 0 | CH | 6COM | 18MM | .025 | F | 9°B | ..... | |

D-.023-027 E-.017-.018 F-.018-.024.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| 100A, 120A, 140A, 150A, ENGINES | 99-107 | 2⅛ | FREE LENG TH | 3 |
| 260A, 280A, ENGINES. O. | 100-108 | 1.827 | FREE LENG TH | 2⅝ |
| I. | 91-99 | 1.827 | FREE LENG TH | 2⅝ |

I-INNER. O-OUTER.

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| WB14, WB20, WB20T | ⅛* | 1† | 25/6‡ | 8 |
| WB22, WB22T, WB26, WB28, WB28T, WB2264, WB2864 | ⅛* | 1† | 25/6‡ | 8 |
| WB3264 | ⅛* | 1† | 25/6‡ | 8½ |

*-PLUS 0, MINUS ⅛. †-PLUS 20', MINUS 5'. ‡-PLUS OR MINUS 15'

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL WB MODELS | (S) 30 | (W) 20 | ..... | 140 | 90 | 140 | 90 | ..... | ..... | 140 |

(S)-SUMMER. (W)-WINTER.

# CROSLEY

**Pick-Up and Panel Delivery**

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| ALL MODELS | 2 | 1 | 1½ | 4 |

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL MODELS | 70 | 13 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 10.5-13.8 | 12.5-15 | 16.5-23 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Not unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | OWN | 4-2 1/4 x 2 1/4 | 40 AT 30 | 5°B | 1 | .009 | .005 | .008 | AL | A-7 | 14MM | .025 | .020 | 12°B | 48 | 130 |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| ALL MODELS | 51 MAX | 1 7/16 | 30 MAX | 1½ |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| ALL MODELS | 1/8 | 2 | 7½ | 6½ |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | 30 ABOVE 65° | 20@10°-65° | 10 UNDER 10° | 90 | 90 | 90 | 90 | 90 | 90 | ..... |

# LINN

**Models L-2, L-4, L-6, L-8**

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In Degrees) |
|---|---|---|---|---|
| ALL MODELS | 1/8 + 1/8 | 3/4° | 2° | 2° |

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| L-2.L-4 | 37 | 1.281 | 19 | 1.656 |
| L-6.L-8 | 58 | 1.594 | 43 | 1.920 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Not unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-2.L-4 | HER QXC3 | 6-3 3/8 x 4 1/8 | 26@ 1600 | 5°B | ... | .006 | .008 | .010 | AL | A5 | 14MM | .025 | .018 | 4°B | ... | ... |
| L-6.L-8 | HER JXE3 | 6-3½x4½ | 26@ 1600 | 5°B | ... | .006 | .008 | .010 | AL.. | A5 | 14MM | .025 | .018 | 4°B | ... | ... |

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | Cooling System Capacity, Quarts |
|---|---|---|---|---|
| ALL MODELS | 6 | 2½ | 6* | 18 |

*—FRONT AXLE ONLY

## BATTERY

| MODEL | Amp. Hr. Capacity | Numbers of Plates | Terminal Grounded |
|---|---|---|---|
| ALL MODELS | 135 | 19 | POS |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| L-2.L-4 | 52½ | NOTE 1 | 38½ |
| L-6.L-8 | 75 | NOTE 1 | 52½ |

NOTE 1—FRONT & INTER.. 70: CENTER & REAR 59½

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | 40 ABOVE 90° | 30@ 32°-90° | 20@ 10°-32°* | 140 | 90 | 140A | 90A | 140 | 140 | B |

*—10W BELOW 10° A—FRONT AXLE ONLY B—CHASSIS LUBE

# WILLYS

## Models CJ-2A, 463, 2WD, 4WD

## CAPACITIES

| MODEL | LUBRICANT CAPACITY: Engine Quarts | Transmission Pints | Rear Axle Pints | |
|---|---|---|---|---|
| CJ-2A JEEP | 4 | 3* | 2⅝** | 11 |
| 4 WD TRUCK | 4 | 3* | 3** | 11 |
| 4 63 PANEL DELIVERY | 4 | 1½ | 2 | 11 |
| 2 WD TRUCK | 4 | 3 | 3 | 11 |

*—TRANSFER CASE---3½PT. **—FRONT AXLE---2½PT.

## BATTERY

| MODEL | Amp. Hr. Capacity | Number of Plates | Terminal Grounded |
|---|---|---|---|
| ALL MODELS | 100 | 15 | NEG |

## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 60-65 | 65-70 | 35-40 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Normal of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | OWN | 4-3⅛x4⅜ | 35-30 | 9°B | 2.4B | .020 | .014 | .014 | AL* | AN-7* | 14MM | .030 | .020 | 5°B | 1.3B | 115 |

*—OR CHAMPION J-9.

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| ALL MODELS | 116 | 1¾ | 50 | 2-7/64 |

## FRONT END

| MODEL | TOE-IN (In inches unless otherwise shown) | CAMBER (In degrees) | CASTER (In degrees) | KING PIN SLANT (In degrees) |
|---|---|---|---|---|
| ALL 4-WHEEL-DRIVE MODELS | 3/64-1/32 | 1 | 3 | 7½ |
| 463 PANEL | 1/16-1/8 | 1¼-1 | 1 | 5 |
| 2 WD TRUCK | 3/64-1/32 | 1 | 4½ | 7½ |

## LUBRICATION

| MODEL | ENGINE: Viscosity and Temperature Range | | | TRANSMISSION: Summer | Winter | REAR AXLE: Summer | Winter | STEERING GEAR: Summer | Winter | UNIVERSAL JOINT |
|---|---|---|---|---|---|---|---|---|---|---|
| ALL MODELS | 30 ABOVE 90° | 20W32° TO 90° | 20W10° TO 32°* | 90A | 80A | 90B | 90B | 140 | 140 | C |

*—10W-10° TO 10° 10% KEROSENE BELOW-10° A—SAME FOR TRANSFER CASE OR OVERDRIVE. B—SAME FOR FRONT AXLES ON 4WD MODELS. C—FRONT AXLE SHAFT U-JOINT: FIBRE GREASE OR NLGI #0. WINTER: NLGI #1 SUMMER. PROPELLER SHAFT U-JOINT: NLGI #0. WINTER: NGLI #1 SUMMER. REAR PROP. SHAFT ON 4WD, LUBRICATED FOR LIFE.

# CUMMINS

## Models HB400, HB600, HBS600, NHB600, NHBS600

## VALVE SPRINGS

| MODEL | VALVE OPEN: Pressure (Ave.) Pounds | Length Inches | VALVE CLOSED: Pressure (Ave.) Pounds | Length Inches |
|---|---|---|---|---|
| HB400, HB600, HBS600 | 129-143 | 2⅜ | 83-91 | 2⅝ |
| NHB600, NHBS600 | 104-114 | 1⅝ | 74-82 | 2⅓ |

## TENSIONS

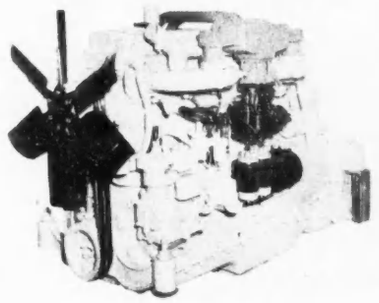
| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 430-450 | 310-330 | 105-115 |

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After: °TC | Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted): Intake | Exhaust | SPARK PLUG: Make | Type | Size | Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HB-400 | 4-4¼x6 | E | 5°B | | | .014 | .022 | | DIESEL | | | | | | 525 |
| | HB-600 | 6-4⅛x6 | E | 5°B | | | .014 | .022 | | DIESEL | | | | | | 525 |
| | HS-600 | 6-4⅛x6 | E | 77°B | | | .016 | .028 | | DIESEL | | | | | | 525 |
| | NHB-600 | 6-5⅛x6 | E | 20°B | | | .014 | .027 | | DIESEL | | | | | | 525 |
| | NHBS-600 | 6-5⅛x6 | F | 77°B | | | .014 | .027 | | DIESEL | | | | | | 625 |

# HALL-SCOTT

## Models 400, 470, and 480



### VALVE SPRINGS

| MODEL | VALVE OPEN | | VALVE CLOSED | |
|---|---|---|---|---|
| | Pressure (Ave.) Pounds | Length Inches | Pressure (Ave.) Pounds | Length Inches |
| ALL MODELS.....O | 243 | 2.000 | 115 | 2.485 |
| I | 243 | 1.941 | 115 | 2.423 |

I-INNER O-OUTER

### TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS..... | L230-250 S30-40 | 180-200 | 130-140 |

L-LARGE S-SMALL

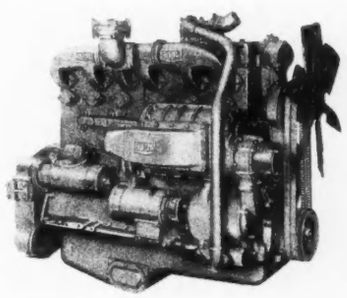
### TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| | 470 | 6-5½X6 | 55-1600 | 55°B | ... | ... | .021 | .030 | CH | NOTE 1 | 18MM | A | .018 | TC | ... | 129* |
| | 480 | 6-5½X6 | 55-1600 | 55°B | ... | ... | .021 | .030 | CH | NOTE 1 | 18MM | A | .018 | TC | ... | 129* |
| | 400 | 6-5½X7 | 55-1600 | 55°B | ... | ... | .021 | .030 | CH | NOTE 1 | 18MM | A | .018 | TC | ... | 129* |

NOTE 1-TWO PER CYL. ALL EXHAUST, NO.6. INTAKE (BUTANE), NO.8. INTAKE (GASOLINE), NO.9. A-.018 - .022 *-AT CRANKING SPEED.

# BUDA

## Series 6B, HP, K, L, LO, 6MO
## 6BD, 6DT, 6DC, 8DC



### VALVE SPRINGS

| MODEL | VALVE OPEN | | VALVE CLOSED | |
|---|---|---|---|---|
| | Pressure (Ave.) Pounds | Length Inches | Pressure (Ave.) Pounds | Length Inches |
| K-428(1936-48)..... | 125-138 | 1 7/64 | 51-57 | 2 1/64 |
| LO-525(1938-48)..... | 128-136 | 2 29/64 | 42-49 | 3 3/64 |
| 6MO-779(1946-48)..... | 145-155 | 2 3/8 | 62-68 | 2 1/32 |
| 6MO-893,6MO-970(1946-48)..... | 145-155 | 2 3/8 | 62-68 | 2 1/32 |
| 6BD-273(1946-48)..... | 105-115 | 1 15/16 | 40-50 | 1 7/8 |
| 6DT-317(1938-48)..... | 84-89 | 1-33/64 | 35-40 | 2 |
| 6DT-468(1938-48)..... | 78-86 | 1 7/16 | 35-38 | 2 3/16 |
| 6DC-844(1944-48)..... | 144-155 | 2 3/8 | 62-68 | 2 5/32 |
| 6DCS-844(1945-48)..... | 144-155 | 2 3/8 | 62-68 | 2 5/32 |
| 8DC-1125,8DCS-1125(1945-48)..... | 162-172 | 2-13/64 | 70-80 | 2 1/4 |

### TENSIONS

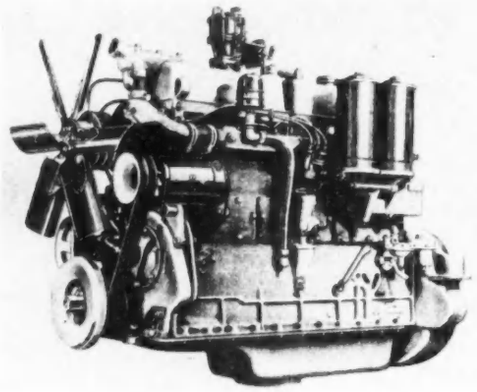
| MODEL | Cylinder Head (pounds-feet) | Main Beaeings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS..... | 7/8"-60-70<br>1"-75-85<br>1 1/8"-95-105<br>1 1/4"-125-135<br>1 3/8"-150-160 | 1 1/8"-195-200<br>1 1/4"-210-230<br>1 3/8"-230-250<br>1 1/2"-245-275<br>1"-285-315<br>1 1/8"-325-350 | |

### TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| | 6B-230 | 6-3 7/8X4 1/8 | 35-1600 | 10°B | ..... | .008 | .009 | .009 | CH | ..... | 14MM | .030 | .018 | ..... | ..... | .... |
| | 6B-273 | 6-3 7/8X4 1/8 | 35-1600 | 10°B | ..... | .008 | .009 | .009 | CH | ..... | 14MM | .030 | .018 | ..... | ..... | .... |
| | HP326 | 6-3 1/2X4 1/2 | 40-1400 | TC | ..... | .006 | .006 | .009 | CH | 15A | 18MM | .030 | .018 | ..... | ..... | 103 |
| | HP351 | 6-3 1/2X5 1/8 | 40-1400 | TC | ..... | .006 | .006 | .009 | CH | 15A | 18MM | .030 | .018 | ..... | ..... | 103 |
| | K428 | 6-4 1/8X4 1/2 | 40-1400 | TC | ..... | .006 | .006 | .009 | CH | 15A | 18MM | .025 | .018 | ..... | ..... | 102 |
| | L525 | 6-4 1/2X5 1/2 | 40-1600 | TC | ..... | .006 | .006 | .009 | CH | 15A | 18MM | .025 | .018 | ..... | ..... | 87 |
| | LO525 | 6-4 1/2X5 1/2 | 40-1500 | 10°B | ..... | .009 | .009 | .018 | CH | J10 | 18MM | .025 | .018 | ..... | ..... | 93 |
| | 6MO-779 | 6-5 1/4X6 | 35-1800 | 20°B | ..... | .015 | .015 | .015 | CH | 6COM | 18MM | .027 | .018 | ..... | ..... | 125 |
| | 6MO893 | 6-5 1/8X6 | 30-1200 | 10°B | ..... | .010 | .015 | .015 | CH | 6COM | 18MM | .027 | .018 | ..... | ..... | 105 |
| | 6MO970 | 6-5 1/8X6 1/2 | 35-1800 | 20°B | ..... | .015 | .015 | .015 | CH | 6COM | 18MM | .027 | .018 | ..... | ..... | 125 |
| | 6BD-230 | 6-3 7/8X4 1/8 | 35-1600 | 20°B | ..... | .008 | .009 | .009 | DIESEL | | | | ..... | ..... | ..... | .... |
| | 6BD-273 | 6-3 7/8X4 1/8 | 20-1800 | 20°B | ..... | .008 | .009 | .009 | DIESEL | | | | ..... | ..... | ..... | 390 |
| | 6DT-317 | 6-3 5/8X5 1/8 | 40-1600 | 12°B | ..... | .009 | .009 | .012 | ..... | DIESEL | | | ..... | ..... | ..... | .... |
| | 6DT468 | 6-4 1/2X5 1/2 | 35-1600 | 12°B | ..... | .009 | .009 | .012 | ..... | DIESEL | | | ..... | ..... | ..... | .... |
| | 6DC844 | 6-5 1/4X6 | 30-1200 | 20°B | ..... | .010 | .015 | .015 | ..... | DIESEL | | | ..... | ..... | ..... | 390 |
| | 6DCS-844 | 6-5 1/4X6 1/2 | 30-1200 | 45°B | ..... | .010 | .015 | .015 | DIESEL | | | | ..... | ..... | ..... | .... |
| | 8DCS-1125 | 8-5 1/4X6 1/2 | 30-1200 | 45°B | ..... | .010 | .015 | .015 | DIESEL | | | | ..... | ..... | ..... | .... |
| | 8DC-1125 | 8-5 1/4X6 1/2 | 30-1200 | 20°B | ..... | .010 | 015 | .015 | DIESEL | | | | ..... | ..... | ..... | .... |

# CONTINENTAL

## Series F, M, B, T, R, S, TD, RD



## VALVE SPRINGS

| MODEL | | VALVE OPEN Pressure (Ave.) Pounds | VALVE OPEN Length Inches | VALVE CLOSED Pressure (Ave.) Pounds | VALVE CLOSED Length Inches |
|---|---|---|---|---|---|
| B6371, B6427 | O. | 102-110 | 1.521 | 53-59 | 1 7/16 |
| | I. | 28-32 | 1-11/64 | 11.3-14.3 | 1 1/16 |
| F6186, F6226 | | 101 | 1 1/8 | 42.5-47.5 | 1 1/16 |
| F4124, F4140, F4162 | | 76 86 | 1-27/64 | 47-53 | 1-45/64 |
| F6186, F6209 | | 98-104 | 1 1/8 | 42.5-47.5 | 1 1/16 |
| M8271, M6290, M6330 | | 111-118 | 1.521 | 53-59 | 1 7/16 |
| 22R | O. | 106-115 | 1 1/8 | 54.7-58.7 | 2 1/4 |
| | I. | 47-53 | 1 5/16 | 20.4-24.4 | 2 5/16 |
| R6513, R6572, R6602, RD6572 | O. | 160-170 | 1 3/16 | 67-73 | 2 1/4 |
| | I. | 82-88 | 1 3/8 | 33-37 | 2 1/4 |
| T6371, T6427, TD6427 | O. | 129 | 1.458 | 71 | 1 7/16 |
| | I. | 57 | 1 1/8 | 12.8 | 1 1/16 |
| S6749 | O. | 200 | 2 3/16 | 90 | 2 7/16 |
| | I. | 100 | 2 1/16 | 45 | 2 5/16 |

I-INNER. O-OUTER

## TENSIONS

| MODEL | Cylinder Head Bearings (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| ALL MODELS | 3/8"-20-25<br>7/16" (16) 30-35<br>1/2" (24) 40-45 | 3/8"- 70-75<br>7/16"-100-110<br>1/2"-130-140<br>9/16"-145-155 | |

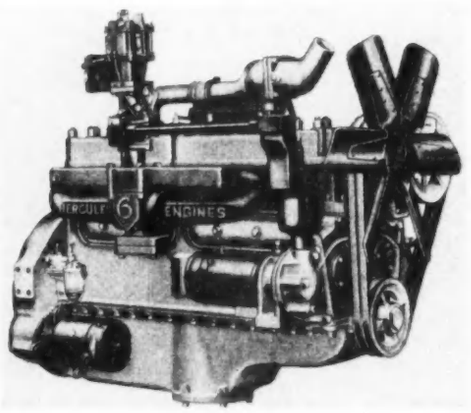
## TUNE UP

| MODEL | Standard Engines Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After °TC | INTAKE VALVE OPENS B-Before A-After Flywheel Teeth TC | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Hot unless noted) Intake | OPERATING TAPPET CLEARANCE (Hot unless noted) Exhaust | SPARK PLUG Make | SPARK PLUG Type | SPARK PLUG Size | SPARK PLUG Gap | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F4124 | 4-3X4 1/8 | 30-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | F4140 | 4-3 1/8X4 1/8 | 30-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | F4162 | 4-3 1/4X4 1/8 | 35-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | F6186 | 6-3X4 1/8 | 35-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | F6209 | 6-3 1/8X4 1/8 | 35-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | F6226 | 6-3 1/8X4 1/8 | 30-40 | TC | | .014 | .014 | .014A | | | 18MM | .025 | | | | 115 |
| | M8271 | 6-3 1/8X4 1/8 | 40-50 | 6 1/2°B | | .0175 | .017 | .020B | | | 18MM | .025 | | | | 115 |
| | M8290 | 6-3 1/4X4 1/8 | 40-50 | 6 1/2°B | | .0175 | .017 | .020B | | | 18MM | .025 | | | | 115 |
| | M6330 | 6-4X4 1/8 | 40-50 | 6 1/2°B | | .0175 | .017 | .020B | | | 18MM | .025 | | | | 115 |
| | B6371 | 6-4 1/8X4 1/8 | 40-50 | 6 1/2°B | | .022 | .017 | .022D | | | 18MM | .025 | | | | 115 |
| | T6371 | 6-4 1/8X4 1/8 | 40-60 | 16°B | | .022 | .017 | .017 | | | 18MM | .025 | | | | |
| | B6427 | 6-4 1/8X4 7/8 | 40-50 | 6 1/2°B | | .022 | .018 | .018 | | | 18MM | .025 | | | | 115 |
| | T6427 | 6-4 1/8X4 7/8 | 40-60 | 16°B | | .022 | .017 | .017 | | | 18MM | .025 | | | | 115 |
| | 22R | 6-4 1/2X5 1/2 | 40-50 | 5°B | | .014 | .014 | .020 | | | 18MM | .025 | | | | 100 |
| | R6513 | 6-4 1/2X5 5/8 | 50-60 | 12°B | | .0245 | .020 | .020 | | | 18MM | .025 | | | | 120 |
| | R6572 | 6-4 1/2X5 5/8 | 50-60 | 12°B | | .0245 | .020 | .020 | | | 18MM | .025 | | | | 120 |
| | R6602 | 6-4 1/2X5 5/8 | 50-60 | 12°B | | .0245 | .020 | .020 | | | 18MM | .025 | | | | 120 |
| | S6749 | 6-5 1/8X5 1/2 | 40-60 | 17°B | | | .020 | .020 | | | 18MM | .025 | | | | |
| | TD6427 | 6-4 1/8X4 7/8 | 40-60 | 12°B | | | | | | | DIESEL | | | | | |
| | RD6572 | 6-5 1/2X5 5/8 | 40-60 | 12°B | | | | | | | DIESEL | | | | | |

A-WITH ROTO VALVE-.010; B-WITH ROTO VALVE .016; D-WITH ROTO VALVE .018

# HERCULES

## Series ZX, IX, OO, OX, JX, WX, YX, RX, HX, and Diesels




## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| JX SERIES | 75 | *60<br>**70 | 52 |
| WX SERIES | 60 | *70<br>**105 | 105<br>††53 |
| YX, RX SERIES | 75 | *105<br>**123 | 105<br>‡115 |
| RXL SERIES | 80 | 175 | 158<br>†123 |
| HX SERIES | 105 | *193<br>**210 | 263 |
| DIX6 | 158 | 105 (a)<br>85 (b) | 95 |
| DOO SERIES | 158 | *77<br>**95 | 140 |
| DJX SERIES | 158 | *77<br>**95 | 140 |
| DRX SERIES | 3/8"-175<br>1"-280 | 175 | 158 |
| DFX SERIES | 300 | 260 | 263 |

° CENTER AND REAR.
†† CONNECTING ROD 3/8 IN.
‡ CONNECTING ROD 5/16 IN.
** FRONT AND INTERMEDIATE
† BABBITT.
a FRONT, CENTER AND REAR.
b INTERMEDIATE.

## VALVE SPRINGS

| MODEL | VALVE OPEN Pressure (Ave.) Pounds | VALVE OPEN Length Inches | VALVE CLOSED Pressure (Ave.) Pounds | VALVE CLOSED Length Inches |
|---|---|---|---|---|
| ZX SERIES | 35 | 59/64 | 22 | 1 1/16 |
| IX SERIES | 42 | 1 1/8 | 21 | 1 1/16 |
| OO, JX SERIES | 58 | 1.594 | 43 | 1.920 |
| QX SERIES | 37-41 | 1 1/8 | 17-19 | 1 1/16 |
| OX, WX, WXL, YX, RX, RXL SERIES | 102 | 2 5/16 | 50 | 2-35/64 |
| HX SERIES O. | 84 | 3 1/8 | 47 | 3 1/16 |
| I. | 45 | 2 3/8 | 27 | 3 1/4 |
| DIX6D O. | 49 | 1.2125 | 26 | 1.5625 |
| I. | 34 | 1.0875 | 16 | 1.4375 |
| DOO, DJX SERIES O. | 55 | 1.406 | 31 | 1.781 |
| I. | 37 | 1.281 | 19 | 1.656 |
| DRX SERIES O. | 48 | 1.449 | 27 | 1.844 |
| I. | 30 | 1.355 | 17 | 1.750 |
| DFX SERIES (EXCEPT DFXH) O. | 94 | 2 3/16 | 55 | 3 1/16 |
| I. | 57 | 2 1/16 | 32 | 3 1/16 |
| DFXH O. | 124 | 1 13/16 | 63 | 2 5/16 |
| I. | 96 | 1 11/16 | 42 | 2 5/16 |

I-INNER. O-OUTER.

## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Not unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| ZX SERIES | | | 15-1000 | 5°A | VAR | .006 | .006 | .006 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| 1X SERIES | | | 15-1000 | 5°A | VAR | .006 | .006 | .008 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| 00 SERIES | | | 15-1000 | 5°A | VAR | .006 | .008 | .012 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| 0XA, 0XB, 0XC, 0XD | | | 26-1600 | 5°B | VAR | .006 | .006 | .008 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| 0XLD | | 6-3⅛X4½ | 26-1600 | 5°B | VAR | .006 | .008 | .010 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| JXA, JXF, JX6, JXE3, JXB, JX6, JXD | | | 26-1600 | 5°A | VAR | .010 | .008 | .010 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| JXLD | | 6-4X4½ | 35-1600 | 5°B | VAR | .010 | .010 | .010 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| WX SERIES | | | 26-1600 | 2°A | VAR | .010 | .006 | .010 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| YX SERIES | | | 26-1600 | 2°A | VAR | .010 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| RXB | | 6-4⅛X5½ | 26-1600 | 2°A | VAR | .010 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| RXC | | 6-4⅛X5½ | 36-1600 | 2°A | VAR | .010 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| RXLC | | 6-4⅛X5½ | 36-1600 | 2°A | VAR | .010 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| RXLD | | 6-4⅛X5½ | 36-1600 | 2°A | VAR | .010 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| HXB | | 6-5X6 | 36-1600 | 5°B | VAR | .015 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| HXC | | 6-5¼X6 | 35-1600 | 5°B | VAR | .015 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| HXD | | 6-5½X6 | 35-1600 | 5°B | VAR | .015 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| HXE | | 6-5¾X6 | 35-1600 | 5°B | VAR | .015 | .010 | .016 | .... | OPT | ..... | .025 | .020 | N | N | OPT |
| DJXB | | 6-3⅛X4½ | 45-2000 | 12°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DIX6D | | 6-3⅜X4 | 45-2000 | 17½°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DJXC | | 6-3⅛X4½ | 45-2000 | 12°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| D0OB | | 4-3⅛X4½ | 30-1200 | 12°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| D0OC | | 4-4X4½ | 30-1200 | 12°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| D0OD | | 4-4¼X4½ | 30-1200 | 12°B | VAR | .010 | .010 | .010 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DRXB | | 6-4⅛X5½ | 30-1200 | 12°B | VAR | .016 | .016 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DRXC | | 6-4⅛X5½ | 30-1200 | 12°B | VAR | .016 | .016 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DFXB | | 6-5X6 | 50-1200 | 5°B | VAR | .015 | .010 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DFXC | | 6-5¼X6 | 50-1200 | 5°B | VAR | .015 | .010 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DFXD | | 6-5½X6 | 50-1200 | 5°B | VAR | .015 | .010 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DFXE | | 6-5¾X6 | 50-1200 | 5°B | VAR | .015 | .010 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |
| DFXH | | 6-5¼X6 | 50-1200 | 5°B | VAR | .015 | .010 | .016 | .... | | DIESEL | ..... | ..... | ..... | ..... | OPT |

N-VARIES WITH COMPRESSION RATIO.

## VALVE SPRINGS

| MODEL | VALVE OPEN | | VALVE CLOSED | |
|---|---|---|---|---|
| | Pressure (Ave.) Pounds | Length Inches | Pressure (Ave.) Pounds | Length Inches |
| 6BZ | 110 | 1⅞ | 61 | 2⅜ |
| 6MZ, 6MZA | 101 | 1⅞ | 64 | 2⅜ |
| 6SRKR | 101 | 2 25/64 | 66 | 2 49/64 |
| 140GK, 140HS, 140HK O | 86 | 1⅝ | 31 | 2⅛ |
| I | 55 | 1⅞ | 26 | 1⅝ |
| 145GK, 145HK O | 118 | 2⅛ | 48 | 2⅛ |
| I | 81 | 2⅜ | 32 | 2⅜ |
| 190DLB | 71±6 | 1⅝ | 48±4 | 1⅝ |
| 148DK O | 118±9 | 2⅛ | 48±4 | 2⅛ |
| I | 81±6 | 2⅜ | 32±3 | 2⅜ |
| 6WAKD O | 140±10 | 2⅛ | 50±3 | 3⅛ |
| I | 139±11 | 2⅜ | 56±4 | 3⅜ |

I-INNER O-OUTER

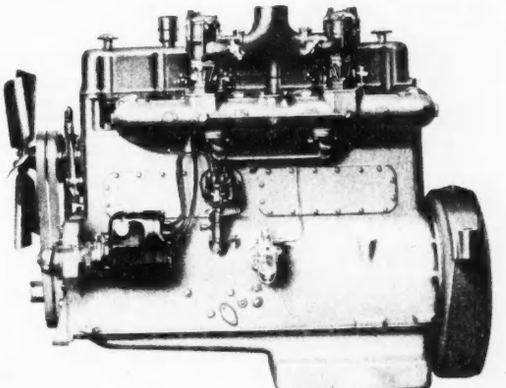
## TENSIONS

| MODEL | Cylinder Head (pounds-feet) | Main Bearings (pounds-feet) | Connecting Rod Bearings (pounds-feet) |
|---|---|---|---|
| 6BZ | 73-75 | 88-92 | 67-69 |
| 6MZA, 6MZR | 73-75 | 96-100 | 67-69 |
| 6SRKR | 73-75 | 129-133 | 121-125 |
| 130HS, 130HL | 96-100 | 109-113 | 67-69 |
| 140GK, 140GZ, 140HS, 140HK | 130-134 | 130-134 | 121-125 |
| 145GK, 145HK | 130-134 | 242-250 | 73-75 |
| 6WA SERIES | 146-150 | 242-250 | 86-88 |
| 190DLB | 96-100 | 108-112 | 45-50 |
| 148DK S | 170-190 | 240-250 | 65-69 |
| L | 240-250 | | |
| 6WAKD S | 170-190 | 240-250 | 90-95 |
| L | 240-250 | | |

S-SMALL (⅝ IN.) L-LARGE (¾ IN.)

# WAUKESHA

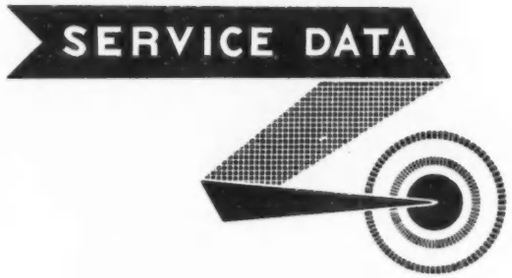
**Models 6BZ, 6MZA, 6SRKR, 190DLB, 148DK and 130, 140, 145, 6WA Series**



## TUNE UP

| MODEL | Standard Engine Make and Model | Number of Cylinders, Bore and Stroke | Normal Oil Pressure Lb. at M.P.H. or R.P.M. | INTAKE VALVE OPENS B-Before A-After | | Intake Tappet Clearance for Valve Timing | OPERATING TAPPET CLEARANCE (Not unless noted) | | SPARK PLUG | | | | Breaker Point Gap | Spark Occurs °TC B-Before A-After | Spark Occurs Flywheel Teeth °TC B-Before A-After | Comp. Pressure at Cranking Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | °TC | Flywheel Teeth TC | | Intake | Exhaust | Make | Type | Size | Gap | | | | |
| | 130HS | 4-3⅜X5 | 30-1500 | 10°A | 3A | .012 | .009-11C | .014-16C | OPT | ... | 18MM | .025 | .018 | 16°B(1 | ... | 130 |
| | 130HL | 4-4X5 | 30-1500 | 10°A | 3A | .012 | .009-11C | .014-16C | OPT | ... | 18MM | .025 | .018 | 16°B(1 | ... | 130 |
| | 6BZ | 6-4X4½ | 40-1500 | 5°A | 1½A | .010 | .010-12C | .014-16C | OPT | ... | 18MM | .025 | .010 | VAR | ... | 112 |
| | 6MZA | 6-4½X4½ | 40-1500 | 8°B | 3B | .008 | .008-10C | .018-21C | OPT | ... | 18MM | .025 | .018 | VAR | ... | 110 |
| | 140HS | 6-4½X5½ | 40-1500 | 5°A | 1½A | .010 | .010-12C | .016-18C | OPT | ... | 18MM | .025 | .018 | 16°B | ... | 130 |
| | 140HK, 140GK | 6-4½X5½ | 40-1500 | 5°A | 1½A | .010 | .010-12C | .016-18C | OPT | ... | 18MM | .025 | .018 | 16°B(1 | ... | 130 |
| | 6SRKR | 6-4⅝X5⅜ | 40-1500 | 8°A | 3A | .004 | .008-10C | .024-26C | OPT | ... | ⅛ | .025 | .016 | VAR | ... | 90 |
| | 145HK, 145GK | 6-5½X6 | 40-1500 | 5°A | 2A | .006 | .009-11C | .024-26C | OPT | ... | 18MM | .025 | .018 | 16°B(1 | ... | 130 |
| | 145GZ | 6-5⅜X6 | 50-1500 | 5°A | 2A | .006 | .009-11C | .024-26C | OPT | ... | 18MM | .025 | .018 | VAR | ... | 130 |
| | 6WAK | 6-6½X6½ | 40-1500 | TC | TC | .012 | .018-20C | .025-27C | OPT | ... | 18MM | .025 | .018 | VAR | ... | 85 |
| | 6WAKH | 6-6½X6½ | 40-1500 | TC | TC | .012 | .018-20C | .025-27C | OPT | ... | 18MM | .025 | .018 | 17°B | ... | 125 |
| | 190DLB | 6-3⅜X4 | 15-1500 | 8°B | ... | .010 | .009-11C | .015-17C | | ... | | DIESEL | | | ... | ... |
| | 148DK | 6-5½X6 | 40-1500 | 10°B | ... | ... | .013 | .024 | ... | ... | | DIESEL | | | ... | ... |
| | 6WAKD | 6-6½X6½ | 40-1300 | TC | TC | .012 | .018-20C | .025-27C | ... | ... | | DIESEL | | | ... | 450 |

(1)-TIMING IS FOR H MODELS. SPARK FOR G MODELS VARIABLE.




# COMMERCIAL CAR JOURNAL MOTOR TRUCK COMPONENT PARTS SPECIFICATION TABLE

## A Compilation of Standard Model Data Submitted by Truck Manufacturers

## KEY TO ABBREVIATIONS AND REFERENCES

### FOOTNOTES

(1 ) Shuler 1579 BX or 15793B
(2 ) Eaton A17-20500 or A16-20500
(3 ) Timken S200P or Eaton A1-22501
(4 ) Shuler and Eaton
(5 ) Timken and Eaton
(6 ) Shuler and Timken or Eaton
(7 ) Lockheed with Bendix Hydrovac
(8 ) Warner T9A or Clark 205V
(9 ) Clark 205V or 205VO
(10) Clark 270V and 270VD or Spicer 6231 and 6231B
(11) Spicer 6252, 6253, 8031C or 8031G
(12) Spicer 7751, 8031C, 8031G
(13) Timken 35100TW, 36021TW
(14) Clark R750 or R950 or Eaton 1350
(15) Clark R950 or Eaton 1350
(16) Eaton 1350 or Timken L-300
(17) Timken L-100 or L-300
(18) Eaton 16500 or Timken L-100 or L-300
(19) Eaton 18501 or Timken R-200 or R-300
(20) Eaton 20500 or Timken U-200
(21) Timken U-200, U-300, R-200 or R-300
(22) Timken or Westinghouse
(23) Integral with carburetor
(24) Model 18M2 has Timken E300 2-speed rear axle
(25) Model 25M2 has Timken H300 2-speed rear axle
(26) Models 29M2, 29ML2 and 35ML2 have Timken L300 2-speed rear axle
(27) Models 29MA and 55MA have Spicer 6231B auxiliary transmission
(28) Model 45M2 has Timken Q300 2-speed rear axle
(29) Models 55M2, 60M2 and 65M2 have Timken S300 2-speed rear axle
(30) Models 60Ma and 65Ma have Spicer 703F auxiliary transmission
(31) Timken SW-3012 or SD-3010
(32) Timken SW-456 or SD462
(33) Loadmaster engine available as optional equipment
(34) Delco-Remy distributor, Bosch magneto
(35) Delco-Remy starter, Electric Auto-Lite generator
(36) Any of these engines optional on any model
(37) Timken SB462 or SW 456W
(38) With 6.66 ratio rear axle and two speed rear axle only
(39) Or, Zenith 28 series
(40) Warner T86E overdrive optional
(41) Timken T302-N-X-3 two speed optional

### MAKES OF UNITS

A-B -American Bosch Corp.
AL -Electric Auto-Lite Co.
AM -Air Maze Corp.
AmC -American Chain & Cable Co.
AOS -A. O. Smith Co.
Aub -Auburn Clutch Company
A-W -Auto-Lite or Willard

B&B -Borg & Beck Div.
B-D -Budd or Dayton
Bdd -Budd Wheel Company
Ben -Bendix Products Div.
B-K -Budd or Kelsey Hayes
Bld -Blood Bros. Machine Co.
B-L -Brown Lipe (Spicer Mfg. Div.)
B-M -Budd or Motor Wheel
Bos -American Bosch Corp.
Bud -Buda Co.
B-W -Bendix Westinghouse Auto. Air Brake Co.

Car -Carter Carburetor Corp.
C-B -Clark or Budd
Cla -Clark Equipment Co.
Con -Continental Motors Corp.
CS -Cleveland Steel Products Co.
Cum -Cummins Engine Co.

Day -Dayton Steel Foundry Co.
DeL -DeLuxe Products Corp.
Det -Detroit Steel Products Co.
Dol -Dollinger Corp.
Don -Donaldson Co.

D-M -Dayton or Motor Wheel
D-R -Delco-Remy Div.

Eat -Eaton Mfg. Co.
Ens -Ensign Carburetor Co.
Eri -Erie Malleable Iron Co.
Exi -Exide (Elec. Storage Battery Co.)

Fed -Fedders Mfg. Co.
Frd -Ford Motor Co.
Ful -Fuller Mfg. Co.

Gem -Gemmer Mfg. Co.
GO -G & O Mfg. Co.

Han -Handy (King Seeley Corp.)
Har -Harrison Radiator Div.
Her -Hercules Motor Corp.
Hof -Hoof Products Co.
H-S -Hall-Scott Motor Car Co.

Inl -Inland Mfg. Div.

Jms -Jamestown Metal Equipment Co.

KHM -Kelsey Hayes or Motor Wheel
K-S -King Seeley Corp.

L-N -Leece Neville Corp.
Lng -Long Mfg. Div.
Loc -Lockheed (Wagner Electric Corp.)
L-P -Lipe Rollway Corp.
Lub -Luber-Finer, Inc.

Mal -Mallory Electric Corp.
Mar -Maremont Auto. Prod., Inc.
Mat -Mather Spring Co.
McC -McCord Radiator & Mfg. Co.
Mic -Michiana Products Corp.
Mid -Midland Steel Products Co.
Mod -Modine Mfg. Co.
Mur -Murray Corp. of America
MW -Motor Wheel Corp.

Nat -National Battery Co.
NP -New Process Gear Co.

Oak -Oakes North Chicago Div.
O-T -Own or Timken

Par -Parish (Spicer Mfg. Div.)
Pce -Pierce Governor Co.
Pfx -Perfex Corp.
Pur -Purilator Products, Inc.

Ro -Ross Gear & Tool Co.
Roc -Rockford Clutch Div.

Sag -Saginaw Steering Gear Div.
Ser -Service Spring Co.
Shu -Shuler Axle Co.
Spi -Spicer Mfg. Div.
SS -Standard Steel Spring Co.
Str -Stromberg Carburetor Div.

Til -Tillotson Mfg. Co.
Tim -Timken-Detroit Axle Co.
T-S -Tru-Stop (Amer. Chain & Cable Co.
Tut -Tuthill Spring Co.

Uni -United Air Cleaner Div.
Up -Universal Products Co.
US -United States Spring & Bumper Co.

Var -Various
Vor -Vortex Mfg. Co.

Wag -Wagner Electric Corp.
War -Warner Gear Div.
Wau -Waukesha Motor Co.
WCL -W. C. Lipe (Lipe-Rollway Corp.)
Wes -Westinghouse (Bendix-Westinghouse Auto. Air Brake Co.)
WGB -W-G-B Oil Clarifier, Inc.
Wil -Willard Storage Battery Co.
Win -Winslow Eng. Co.
Wys -Willys Overland Motors, Inc.

Yng -Young Radiator Co.

Zen -Zenith Carburetor Div.

| | TRUCK MAKE AND MODEL NUMBER | POWER PLANT ACCESSORIES: ENGINE MAKE AND MODEL | GOVERNOR MAKE-(IF STANDARD) | AIR CLEANER MAKE-(IF STANDARD) | OIL FILTER MAKE (IF STANDARD) | CARBURETOR MAKE AND MODEL NUMBER | FUEL FEED SYSTEM MAKE | RADIATOR MAKE | ELECTRICAL EQUIPMENT: IGNITION SYSTEM MAKE | GENERATOR-STARTER MAKE | BATTERY-MAKE | TRANSMISSION LINE: CLUTCH MAKE AND MODEL NUMBER | TRANSMISSION MAKE AND MODEL NUMBER | UNIVERSALS MAKE AND MODEL NUMBER | RUNNING GEAR: FRONT AXLE MAKE AND MODEL NUMBER | REAR AXLE MAKE AND MODEL NUMBER | STEERING GEAR MAKE AND MODEL NUMBER | SERVICE BRAKES MAKE OF ACTUATION | HAND BRAKES MAKE OF ACTUATION | BRAKE DRUM MAKE | WHEELS-MAKE | SPRING -MAKE | FRAME-MAKE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BROCKWAY | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 88 WH | Com 38B | .... | Uni | ... | Zen 63-A-12 | AC | G O | AL | AL | Exi | L-R 13 in. | War T97 | Spi 1410 | Tim 31000H | Tim E-100DPH | RO TA-14 | ... | ... | Tim | Bdd | Eat | Par |
| 2 | 128 W | Con 40B | .... | Uni | ... | Zen 63-A-14 | AC | G O | AL | AL | Exi | L-R 13 in. | Ful 5A-330 | Spi 1500 | Tim 32505H | Tim H-100DPH | RO TA-14 | ... | ... | Tim | Bdd | Eat | Par |
| 3 | 146 W | Con 40B | .... | Uni | WGB | Zen 63-A-14 | AC | G O | AL | AL | Exi | L-R 13 in. | Ful 5A-330 | Spi 1500 | Tim 35020H | Tim Q-100DPH | RO TA-66 | ... | ... | Tim | Bdd | Eat | Par |
| 4 | 152 W | Con 42BX | .... | Uni | WGB | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 14 in. | Ful 5A-430 | Spi 1500 | (1) | (2) | RO TA-71 | ... | ... | (4) | Bdd | Eat | Par |
| 5 | 154 W(T) | Con 42BX | .... | Uni | WGB | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 14 in. | Ful 5A-430 | Spi 1500 | Tim 35020TW | Eat A-16-20500 | RO TA-66 | ... | ... | (5) | Bdd | Eat | Par |
| 6 | 154 WH(T) | Con 46B | .... | Uni | Mic | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 14 in. | Ful 5A-620 | Spi 1500 | Tim 35020TW | Eat A-16-20500 | RO TA-66 | ... | ... | (5) | Bdd | Eat | Par |
| 7 | 260 XW | Con 48B | .... | Uni | Mic | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 15 in. | Ful 5A-620 | Spi 1600 | Shu 15793B | (3) | RO TA-71 | ... | ... | (6) | Bdd | Eat | Par |
| 8 | 240 XW | Con 46B | .... | Uni | Mic | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 14 in. | Ful 5A-620 | Spi 1500 | Shu 15793B | Eat A-16-20540 | RO TA-71 | ... | ... | (4) | Bdd | Eat | Par |
| 9 | 260 XL | Con 46B | .... | Uni | Mic | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 14 in. | Ful 5A-620 | Spi 1600 | Tim 27460TW | Tim U-200P | RO TA-71 | ... | ... | Tim | Bdd | Eat | Par |
| 10 | 260 XWL | Con 48B | .... | Uni | Mic | Zen 63 AW-16 | AC | G O | AL | AL | Exi | L-R 15 in. | Ful 5A-620 | Spi 1600 | Tim 27460TW | Tim U-200P | RO TA-71 | ... | ... | Tim | Bdd | Eat | Par |
| | CHEVROLET | | | | | | | | | | | | | | | | | | | | | | |
| 11 | 3100 FP | O-T/Master | .... | AC | ... | Car WI-574S | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 12 | 3600 FR | Do. | .... | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 13 | 3800 FS | Do. | .... | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 14 | 4100 RJ | Do.(33) | .... | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 15 | 4400 RK | Do.(33) | .... | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 16 | 4500 RL | Do.(33) | Han | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 17 | 5100 (S)RP(S) | O-L/Master | Han | AC | ... | Car.BBI-517S | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 18 | 5400 (S)RR(S) | Do. | Han | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 19 | 5700 (S)RS(S) | Do. | Han | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 20 | 6100 (S)RV(S) | O-L/Master | Han | AC | ... | Car.WI-574S | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 21 | 6400 (S)RW(S) | Do. | Han | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| 22 | 6700 RX | Do. | Han | AC | ... | Do. | AC | Har | D-R | D-R | D-R | Inl | Own | Spi | Own | Own | Sag | ... | ... | Own | B-K | Own | Own |
| | CORBITT | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 18 BG | Con M6330 | Zen | Uni | Fram | Zen 63 AW 12R | AC | PFX | D-R | D-R | Exi | L-R Z30S | Cla 205V | Spi 1500 | Tim 32502-H | Tim H100 DPH | RO TA66 | (7) | Cla | Day | Day | Mar | Par |
| 24 | 22 BG | Con B6371 | Zen | Uni | Con | Zen 29 WI2R | AC | PFX | D-R | D-R | Exi | L-R Z30S | Ful 5A43 | Spi 1600 | Tim 35000-H | Tim L100 DPH | Ro TA66 | (7) | Ful | Day | Day | Mar | Par |
| 25 | 25 BG | Con B6427 | Zen | Uni | Con | Zen 29-14R | AC | PFX | D-R | D-R | Exi | L-R Z31S | Ful 5A43 | Spi 1600 | Tim 35100-TW | Tim Q-100P | RO TA66 | (7) | Ful | Day | Day | Mar | Par |
| 26 | 22 FG | Con B6371 | Zen | Uni | Con | Zen 29 WI2R | AC | PFX | D-R | D-R | Exi | L-R Z30S | Ful 5A43 | Bld 6N | Tim F-2090-H | Tim R-2090-H | RO 700 | (7) | Amc | Tim | Bdd | Mar | Par |
| 27 | 18 TG | Con M6330 | Zen | Uni | Fram | Zen 63 AWI2R | AC | PFX | D-R | D-R | Exi | L-R Z30S | Cla 205V | Spi 1500 | Tim 32502-TW | Tim H-100P | RO TA66 | Wes | Cla | Day | Day | Mar | Par |
| 28 | H18 TG | Con M6330 | Zen | Uni | Fram | Zen 63 AWI2R | AC | PFX | D-R | D-R | Exi | L-R Z30S | Cla 205V | Spi 1500 | Tim 32502-TW | Tim L-100P | RO TA66 | Wes | Cla | Day | Day | Mar | Par |
| 29 | 22 TG | Con B6427 | Zen | Uni | Con | Zen 29-14R | AC | PFX | D-R | D-R | Exi | L-R Z31S | Ful 5A43 | Spi 1600 | Tim 35000-TW | Tim L-100P | RO TA66 | Wes | Ful | Day | Day | Mar | Par |
| 30 | H22 TG | Con B6427 | Zen | Uni | Con | Zen 29-14R | AC | PFX | D-R | D-R | Exi | L-R Z31S | Ful 5A43 | Spi 1600 | Tim 35100-TW | Tim Q-100P | RO TA66 | Wes | Ful | Day | Day | Mar | Par |
| 31 | 25 TG | Con R6513 | Con | Uni | Mic | Zen 29 WI6 | AC | PFX | D-R | D-R | Exi | L-R Z42S | Spi 6253 | Spi 1700 | Tim 35100-TW | Tim Q-100P | RO TA70 | Wes | Own | Day | Day | Mar | Par |
| 32 | H25 TG | Con R6513 | Con | Uni | Mic | Zen 29 WI6 | AC | PFX | D-R | D-R | Exi | L-R Z42S | Spi 6253 | Spi 1700 | Tim 35100-TW | Tim R-100P | RO TA70 | Wes | Own | Day | Day | Mar | Par |
| 33 | 28 TG | Con R6602 | Con | Uni | Mic | Zen 29 WI6 | AC | PFX | D-R | D-R | Exi | L-R Z40SX | Ful 5A650 | Spi 1700 | Tim 26450-W | Tim S-200P | RO T74 | Wes | Own | Day | Day | Mar | Par |
| 34 | 22 TD | Her DWXD | Her | ... | Pur | ... | AB | PFX | D-R | D-R | Exi | L-R Z31S | Ful 5A430 | Spi 1600 | Tim 35000-TW | Tim L-300P | RO TA66 | Wes | Ful | Bdd | Bdd | Mar | Par |
| 35 | H22 TD | Her DWXD | Her | ... | Pur | ... | AB | PFX | D-R | D-R | Exi | L-R Z31S | Ful 5A430 | Spi 1600 | Tim 35100-TW | Tim Q-300P | RO TA66 | Wes | Ful | Day | Day | Mar | Par |
| 36 | 25 TD | Her DRXC | Her | ... | Pur | ... | AB | PFX | D-R | D-R | Exi | L-R Z42S | Spi 6253 | Spi 1700 | Tim 35000-TW | Tim Q-300P | RO TA70 | Wes | Own | Bdd | Bdd | Mar | Par |
| 37 | H25 TD | Her DRXC | Her | ... | Pur | ... | AB | PFX | D-R | D-R | Exi | L-R Z42S | Spi 6253 | Spi 1700 | Tim 35100-TW | Tim R-300P | RO TA70 | Wes | Own | Day | Day | Mar | Par |
| 38 | 27 TD | Cum HB600 | Cum | ... | DeL | ... | Cum | PFX | D-R | D-R | Exi | L-R Z40SX | Ful 5A920 | Spi 1700 | Tim 26450-W | Tim Q-100P | RO T74 | Wes | Own | Day | Day | Mar | Par |
| 39 | H27 TD | Cum HB600 | Cum | ... | DeL | ... | Cum | PFX | D-R | D-R | Exi | L-R Z40SX | Ful 5A920 | Spi 1700 | Tim 26450-W | Tim R-300P | RO T74 | Wes | Own | Day | Day | Mar | Par |
| 40 | 28 TD | Cum NHB600 | Cum | ... | Lub | ... | Cum | PFX | D-R | D-R | Exi | L-R Z40SX | Ful 5A920 | Spi 1700 | Tim 26450-W | Tim S-200P | RO T74 | Wes | Own | Day | Day | Mar | Par |
| | CROSLEY | | | | | | | | | | | | | | | | | | | | | | |
| 41 | All | Own | ... | Uni | Fram | Til DY-9B | AC | YNG | AL | AL | AL | Roc | War Asl-T92 | Spi | Own | Spi 20ZZ-3 | RO S-12 | Own | Own | Own | MW | Mat | Own |
| | DIAMOND T | | | | | | | | | | | | | | | | | | | | | | |
| 42 | 201 | Her OXLD | ... | Uni | Fram | Zen | AC | Own | AL | AL | Exi | B&B 10A-7 | War T9 | Spi 1350 | Cla F250 | Cla R650 | RO 660 | Wag | War | Var | C-B | Own | Own |
| 43 | 306 | Her QXLD | ... | Uni | Fram | Zen | AC | Own | AL | AL | Exi | B&B 11A-6 | War T9 | Spi 1350 | Cla F350 | (14) | RO 660 | Wag | War | Var | C-B | Own | Own |
| 44 | 404 | Her JXB | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | B&B 11 A-6 | War T9A | Spi 1410 | Cla F450 | (15) | RO 660 | Wag | War | Var | C-B | Own | Own |
| 45 | 509 | Her JXC-JXD | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | B&B 11A-6 | (8) | Spi 1410 | Cla F450 | (16) | RO 660 | Wag | War | Var | C-B | Own | Own |
| 46 | 614 | Her JXD | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | B-L 12ML | (9) | Spi 1500 | Cla F450 | (17) | RO 700 | Wag | Cla | Var | C-B | Own | Own |
| 47 | 614 | Her JXLD | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | B-L 12ML | (9) | Spi 1500 | Cla F450 | (17) | RO 700 | Wag | Cla | Var | C-B | Own | Own |
| 48 | 404 SC | Her JXE | K-S | Uni | WGB | Zen | AC | Own | AL | AL | Exi | B&B 11A-6 | War T9A | Spi 1410 | Cla F452 | (14) | RO 660 | Wag | War | Var | C-B | Own | Own |
| 49 | 509 SC | Her JXB | K-S | Uni | WGB | Zen | AC | Own | AL | AL | AL | B&B 11A-6 | (8) | Spi 1410 | Cla F452 | (15) | RO 660 | Wag | War | Var | C-B | Own | Own |
| 50 | 509 SCH | Her JXC | K-S | Uni | WGB | Zen | AC | Own | AL | AL | AL | B&B 11A-6 | Cla 205V | Spi 1410 | Cla F452 | (18) | RO 660 | Wag | Cla | Var | C-B | Own | OWN |
| 51 | 702 A | Her WXLD | Pce | Uni | Fram | Zen | AC | Own | AL | AL | AL | Roc 14TT | (10) | Spi 1600 | Tim 35100TW | (19) | RO TA66 | (22) | T-S | Var | C-B | Own | Own |

TURN TO PAGE 62, PLEASE



(34) Delco-Remy distributor, Bosch magneto

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| | TRUCK MAKE AND MODEL NUMBER | POWER PLANT ACCESSORIES: ENGINE MAKE AND MODEL | GOVERNOR MAKE-(IF STANDARD) | AIR CLEANER MAKE-(IF STANDARD) | OIL FILTER MAKE (IF STANDARD) | CARBURETOR MAKE AND MODEL NUMBER | FUEL FEED SYSTEM MAKE | RADIATOR MAKE | ELECTRICAL EQUIPMENT: IGNITION SYSTEM MAKE | GENERATOR-STARTER MAKE | BATTERY-MAKE | TRANSMISSION LINE: CLUTCH MAKE AND MODEL NUMBER | TRANSMISSION MAKE AND MODEL NUMBER | UNIVERSALS MAKE AND MODEL NUMBER | RUNNING GEAR: FRONT AXLE MAKE AND MODEL NUMBER | REAR AXLE MAKE AND MODEL NUMBER | STEERING GEAR MAKE AND MODEL NUMBER | SERVICE BRAKES MAKE OF ACTUATION | HAND BRAKES MAKE OF ACTUATION | BRAKE DRUM MAKE | WHEELS-MAKE | SPRING-MAKE | FRAME-MAKE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DIAMOND T (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 703 | Con T6427 | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | Roc 14TT | (10) | Spi 1600 | Tim 35100TW | (19) | RO TA66 | (22) | T-S | Var | C-B | Own | Own |
| 53 | 806 A | Her WXLD | Pce | Uni | Fram | Zen | AC | Own | AL | AL | Exi | Roc 14TT | (10) | Spi 1600 | (13) | (20) | RO TA66 | (22) | T-S | Var | C-B | Own | Own |
| 54 | 809 | Con T6427 | K-S | Uni | Fram | Zen | AC | Own | AL | AL | AL | Roc 14TT | (10) | Spi 1600 | (13) | (20) | RO TA66 | (22) | T-S | Var | C-B | Own | Own |
| 55 | 901 | Con T6572 | Con | Uni | Fram | Zen | AC | Own | AL | AL | ... | Roc 15TT | (11) | Spi 1600 | Tim 36021TW | (21) | RO TA71 | (22) | T-S | Var | C-B | Own | Own |
| 56 | 910 | Cum HB600 | A-B | Uni | ... | ... | A-B | Own | DR | DR | ... | Spi 14in. | (12) | Spi 1700 | Tim 36021TW | Tim V300 | RO TA71 | (22) | T-S | Var | C-B | Own | Own |
| | DODGE | | | | | | | | | | | | | | | | | | | | | | |
| 57 | B-1-B, B-1-C | Own 218 | ... | Uni | ... | Car DTC-1 | AC | JMS | AL | AL | A-W | B&B 11260 | NP 39750 | CS P-96 | Own T142 | Own T142 | Gem 305 | Own | Own | Own | B-M | Det | Mur |
| 58 | B-1-D | Own 230 | ... | Uni | ... | Str 380982 | AC | Fed | AL | AL | A-W | B&B 11260 | NP 39980 | UP 5160 | Own T146 | Own T146 | Gem 305 | Own | Own | Own | Bdd | Det | Mur |
| 59 | B-1-F | Own 237 | ... | Uni | ... | Car ETTI | AC | Fed | AL | AL | A-W | B&B 11296 | NP 39760 | CS 096 | Own T148 | Own T148 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 60 | B-1-FA | Own 237 | ... | Uni | ... | Car ETTI | AC | Fed | AL | AL | A-W | B&B 11296 | NP 39760 | CS 096 | Own T148 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 61 | B-1-H | Own 237 | Han | AC | DeL | Car ETTI | AC | Fed | AL | AL | A-W | B&B 10939 | NP 39760 | CS 096 | Own TX148 | Own TX148 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 62 | B-1-HA | Own 237 | Han | AC | DeL | Car ETTI | AC | Fed | AL | AL | A-W | B&B 10939 | NP 39760 | CS 096 | Own TX148 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 63 | B-1-FM | Own 237 | ... | Uni | ... | Car 6el | AC | Fed | AL | AL | A-W | B&B 11296 | NP 88070 | CS 096 | Own T152 | Own T152 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 64 | B-1-FMA | Own 237 | ... | Uni | ... | Car 6el | AC | Fed | AL | AL | A-W | B&B 11296 | NP 88070 | CS 096 | Own T152 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 65 | B-1-HM | Own 237 | Han | AC | DeL | Car 6el | AC | Fed | AL | AL | A-W | B&B 10939 | NP 88070 | CS 096 | Own T152 | Own TX152 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 66 | B-1-HMA | Own 237 | Han | AC | DeL | Car 6el | AC | Fed | AL | AL | A-W | B&B 10939 | NP 88070 | CS 096 | Own T152 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 67 | B-1-J | Own 251 | Han | Uni | Pur | Car ETTI | AC | Fed | AL | AL | A-W | B&B 10939 | NP 39810 | UP 5370 | Own T150 | Own T150 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 68 | B-1-JA | Own 251 | Han | Uni | Pur | Car ETTI | AC | Fed | AL | AL | A-W | B&B 10939 | NP 39810 | UP 5370 | Own T150 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 69 | B-1-KA | Own 251 | Han | AC | DeL | Car ETTI | AC | Fed | AL | AL | A-W | B&B 10939 | NP 39810 | UP 5370 | Own T150 | Eat 16500 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 70 | B-1-JM | Own 251 | Han | Uni | Pur | Car 6el | AC | Fed | AL | AL | A-W | B&B 10939 | NP 88090 | UP 5370 | Own T154 | Own T154 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 71 | B-1-JMA | Own 251 | Han | Uni | Pur | Car 6el | AC | Fed | AL | AL | A-W | B&B 10939 | NP 88090 | UP 5370 | Own T154 | Eat A5-1350 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 72 | B-1-KMA | Own 251 | Han | AC | DeL | Car 6el | AC | Fed | AL | AL | A-W | B&B 10939 | NP 88090 | UP 5370 | Own T154 | Eat 16500 | Gem B-60 | Own | Own | Own | Bdd | Det | Mid |
| 73 | B-1-R | Own 282 | (23) | AC | Pur | Car Eyc 4 | AC | JMS | AL | AL | A-W | B&B 11575 | NP 88220 | CS 096 | Own T156 | Tim H-100 | Gem B-60 | O-T | Own | O-T | Bdd | Det | Mid |
| 74 | B-1-RA | Own 282 | (23) | AC | Pur | Car Eyc4 | AC | JMS | AL | AL | A-W | B&B 11575 | NP 88220 | CS 096 | Own T156 | Tim H-300 | Gem B-60 | O-T | Own | O-T | Bdd | Det | Mid |
| 75 | B-1-T | Own 331 | (23) | AC | Pur | Car E7-B1 | AC | JMS | AL | AL | A-W | B&B 11581 | NP 38110 | CSU-96 | Tim 32516 | Tim L-100 | RO TA26 | Tim | Own | Tim | Bdd | Det | Mid |
| 76 | B-1-TA | Own 331 | (23) | AC | Pur | Car E7-B1 | AC | JMS | AL | AL | A-W | B&B 11581 | NP 38110 | CSU-96 | Tim 32516 | Tim L-300 | Ro TA26 | Tim | Own | Tim | Bdd | Det | Mid |
| 77 | B-1-V | Own 331 | (23) | AC | Pur | Car E7-B1 | AC | JMS | AL | AL | A-W | B&B 11581 | NP 38110 | CSU-96 | Tim 35020 | Tim Q-100 | RO TA26 | Tim | Own | Tim | Bdd | Det | Mid |
| 78 | B-1-VA | Own 331 | (23) | AC | Pur | Car E7-B1 | AC | JMS | AL | AL | A-W | B&B 11581 | NP 38110 | CSU-96 | Tim 35020 | Tim Q-300 | RO TA26 | Tim | Own | Tim | Bdd | Det | Mid |
| 79 | B-1-PW | Own 230 | (23) | AC | Pur | Car E7-F1 | AC | JMS | AL | AL | A-W | B&B 11303 | NP 38580 | UP 5160 | Own T137 | Own T137 | Gem B-60 | Own | Own | Own | Bdd | Eat | Mur |
| | FEDERAL | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 16 M Series | Her JXEF | NO | Uni | Pur | Car | AC | LNG | D-R | D-R | AL | B&B 11in. | War T-9 | Spi 1300 | Tim 30000 | Tim 53547 | Gem 335 | ... | ... | ... | B-D | Det | Par |
| 81 | 18 M Series | Her JXBF | NO | Uni | Pur | Car | AC | LNG | D-R | D-R | AL | B&B 11in. | War T-9 | Spi 1300 | Tim 30003 | Tim E-100(24) | Gem 335 | ... | ... | ... | B-D | Det | Par |
| 82 | 25 M Series | Her JXCF | NO | Uni | Fram | Car | AC | LNG | D-R | D-R | AL | B&B 12in. | Cla 205 | Spi 1400 | Tim 31000 | Tim H-100(25) | Gem 335 | ... | ... | ... | B-D | Det | Par |
| 83 | 29 M Series | Her JXDF | Hof | Don | Fram | Car | AC | LNG | D-R | D-R | AL | B&B 12in. | Cla 205(27) | Spi 1500 | Tim 32514 | Tim L-100(26) | Gem 335-3 | ... | ... | ... | B-D | Det | Par |
| 84 | 29 ML Series | Her JXLDF | Hof | Don | Fram | Car | AC | LNG | D-R | D-R | AL | B&B 12in. | Cla 205 | Spi 1500 | Tim 32514 | Tim L-100(26) | Gem 335-3 | ... | ... | ... | B-D | Det | Par |
| 85 | 35 M Series | Con T-6371 | Hof | Don | Mic | Zen | AC | LNG | D-R | D-R | AL | B&B 13in. | Cla 270 | Spi 1500 | Tim 32514 | Tim L-100(26) | Gem 375 | ... | ... | ... | B-D | Det | Par |
| 86 | 45 M Series | Con T-6427 | Hal | Don | Mic | Zen | AC | LNG | Hal | D-R | Exi | LNG 14in. | Cla 270 | Bld 1600 | Tim 35011 | Tim Q-100(28) | Gem 400 | ... | T-S | ... | B-D | Det | Par |
| 87 | 55 M Series | Con T-6427 | Hal | Don | Mic | Zen | AC | LNG | Hal | D-R | Exi | LNG 14in. | Cla 270(27) | Bld 1600 | Tim 36021 | Tim S-200(29) | Gem 400 | ... | T-S | ... | B-D | Det | Par |
| 88 | 60 M Series | Con 22R | Zen | Don | Mic | Zen | AC | LNG | D-R | D-R | Exi | LNG 14in. | Ful5A650(30) | Bld 1600 | Tim 36021 | Tim S-200(29) | Gem 500 | ... | T-S | ... | B-D | Det | Par |
| 89 | 65 M Series | Con R-6602 | Con | Don | Mic | Zen | AC | LNG | D-R | D-R | Exi | LNG 15in. | Ful5A650(30) | Bld 1700 | Tim 36000 | Tim S-200(29) | Gem 500 | ... | T-S | ... | B-D | Det | Par |
| 90 | 663 M Series | Con R6602 | Con | Don | Mic | Zen | AC | LNG | D-R | D-R | Exi | LNG 15in. | Ful 5A650 | Bld 1700 | Tim 36000 | (31) | Gem 500 | ... | T-S | ... | Bdd | Det | Par |
| 91 | 664 M Series | Con R-6602 | Con | Don | Mic | Zen | AC | LNG | D-R | D-R | Exi | LNG 15in. | Spi 7741 | Bld 1700 | Tim 27452 | (32) | Gem 500 | ... | T-S | ... | Bdd | Det | Par |
| | FORD | | | | | | | | | | | | | | | | | | | | | | |
| 92 | F-1 to F-6 | Own | ... | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own |
| 93 | F-7 & F-8 | Own | Bos | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own | Own * |
| | F. W. D. | | | | | | | | | | | | | | | | | | | | | | |
| 94 | HA | Wau BZ | Wau | AM | Mic | Zen 293U16 | AC | PFX | D-R | D-R | Wil | Own H14 | Own H | Bld 5N | Own H | Own H | RO TA66 | Loc | Own | Own | Own | Own | Own |
| 95 | HR | Wau HZA | Wau | AM | Mic | Zen IN167SU | AC | PFX | D-R | D-R | Wil | Own H14 | Own H | Bld 5N | Own H | OWN H | RO TA66 | Loc | Own | Own | Own | Own | Own |
| 96 | HG | Wau HZA | Wau | AM | Mic | Zen IN167SU | AC | PFX | D-R | D-R | Wil | Own H14 | Own H | Bld 5N | Own H | Own H | RO TA66 | Loc | Own | Own | Own | Own | Own |
| 97 | SU | Wau SRKR | Wau | AM | Mic | Zen IN167SU | AC | PFX | D-R | AL | Wil | Own U14 | Own U | Bld 6N | Own U | Own U | RO TW74 | Loc | Own | Own | Own | Own | Own |
| 98 | M7 | Wau 145GK | Wau | AM | Mic | Zen W16 | AC | PFX | D-R | D-R | Wil | Own M14 | Own M | Bld 7N | Tim F409 | Tim I758 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |
| 99 | M10 | Wau 145GK | Wau | AM | Mic | Zen W16 | AC | PFX | D-R | D-R | Wil | Own M14 | Own M | Bld 7N | Tim F409 | Tim 79721 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |
| 100 | M7D | Bud 844 | Bud | AM | AC | ... | Bos | PFX | ... | D-R | Wil | Own M14 | Own M | Bld 7N | Tim F409 | Tim I758 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | M10D | Bud 844 | Bud | AM | AC | ... | Bos | PFX | ... | D-R | Wil | Own M14 | Own M | Bld 7M | Tim F409 | Tim 79721 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |
| 102 | M6X6 | Wau 1456k | Wau | AM | Mic | Zen W16 | AC | PFX | D-R | D-R | Wil | Own M14 | Own M | Bld 7M | Tim F409 | Tim 462 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |
| 103 | M6X6D | Bud 844 | Bud | AM | AC | ... | Bos | PFX | ... | D-R | Wil | Own M14 | Own M | Bld 7M | Tim F409 | Tim 462 | RO P720 | Wes | Own | Tim | Bdd | Own | Own |
| | **LINN** | | | | | | | | | | | | | | | | | | | | | | |
| 104 | Linn L-2, L-4 | Her QXC3 | ... | Dol | ... | Zen 63AW-10 | AC | G O | AL | AL | AL | L-R 12ML | NP 38 | UP | Tim F30-828H | Own 600 | Sag630-061 | Wag | NP | Eri | Bdd | Tut | Own |
| 105 | Linn L-6, L-8 | Her JXE3 | ... | Dol | ... | Zen 63AW-10 | AC | G O | AL | AL | AL | L-R 12ML | NP 38 | UP | Tim F30-828H | Own 600 | Sag630-061 | Wag | NP | Eri | Bdd | Tut | Own |
| | **MARMON-HERRINGTON** | | | | | | | | | | | | | | | | | | | | | | |
| 106 | DVL-4 | Wys CJ-2A | Hof | Uni | Fram | Car 596-S | AC | YNG | AL | D-R | AL | B&B | Own | Spi 1350 | Own | None | RO TA15030 | Frd | Own | Own | Bdd | Ser | ... |
| 107 | LD-7, R5, R6, R5-6, R6-6 | Frd 8RT(239) | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | ... | ... | ... | Frd | Frd | Frd | Frd | Frd | Frd | Frd |
| 108 | Q5, Q6, Q5-6, Q6-6 | Frd 8EQ(337) | Bos | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | Frd | ... | ... | ... | Frd | Frd | Frd | Frd | Frd | Frd | Frd |
| 109 | MH440-4, MH440-6 | Her WXLC3 | K-S | Don | Mic | Zen 28 | AC | Yng | D-R | D-R | AL | B-L Z32S | Ful 5A-430 | Spi 1500 | Tim F-2090 | Tim R-2090 | RO TA-71 | B-W | Amc | Tim | Bdd | SS | Own |
| 110 | MH555-4, MH555-6 | Her RXC | K-S | Don | Mic | Zen 29 | AC | Yng | D-R | D-R | AL | B-L Z31S | Ful 5A-620 | Spi 1500 | Tim F-3100 | Tim R-3100 | RO TA-71 | B-W | Amc | Tim | Bdd | SS | Own |
| | **OSHKOSH** | | | | | | | | | | | | | | | | | | | | | | |
| 111 | W-312 | Her WXLC0-3 | Pce | Don | Mic | Zen 29-AW-14 | AC | PFX | D-R | D-R | Wil | L-R Z-31-S | Ful 5-A-43 | Spi 1500 | Own W-312 | Own W-312 | RO TA-71 | Ben | OWN | Own | Bdd | Tut | Par |
| 112 | W-1700 | Her RXC | Pce | Don | Mic | Zen 29-AW-14 | AC | PFX | D-R | D-R | Wil | L-R Z-31-S | Ful 5-A-620 | Spi 1600 | Own W-1700 | Own W-1700 | RO TA-71 | Ben | Own | Own | Bdd | Tut | Par |
| 113 | W-700 | Her RXCD | Pce | Don | Mic | Zen 29-AW-14 | AC | PFX | AL | D-R | Wil | L-R Z-31-S | Ful 5-A-650 | Spi 1600 | Own W-700 | Own W-700 | RO TA-71 | Ben | Own | Own | Bdd | Tut | Par |
| 114 | W-703, W-705 | Her RXLD | Pce | Don | Mic | Zen 29-AW-14 | AC | PFX | AL | D-R | Wil | L-R Z-31-S | Ful 5-A-650 | Spi 1600 | Own W-700 | Own W-700 | RO TA-71 | Ben | Own | Own | Bdd | Tut | Par |
| 115 | W-703-D | Her DRXC | Bos | Don | Pur | ... | Bos | PFX | ... | (35) | Wil | L-R Z-31-S | Ful 5-A-650 | Spi 1600 | Own W-700 | Own W-700 | RO TA-71 | Ben | Own | Own | Bdd | Tut | Par |
| 116 | W-906 | Cum HB-600 | Cum | Don | Cum | ... | Cum | PFX | ... | D-R | Wil | L-R Z-40-S | Ful 4-A-86 | Spi 1700 | Own W-906 | Own W-906 | RO P-720 | B-W | Own | Own | Bdd | Tut | Par |
| 117 | W-2200 | Bud 6MO-779 | Pce | Don | DeL | Zen 63-AW-16 | AC | PFX | D-R | D-R | Wil | L-R Z-40-SX | Ful 4-A-86 | Spi 1700 | Own W-2200 | Own W-2200 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| 118 | W-2201 | Bud 6MO-893 | Pce | Don | DeL | Zen 63-AW-16 | AC | PFX | D-R | D-R | Wil | L-R Z-40-SX | Ful 4-A-86 | Spi 1700 | Own W-2200 | Own W-2200 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| 119 | W-2204 | Bud 6DC-844 | Bos | Don | DeL | ... | Bos | PFX | ... | D-R | Wil | L-R 17-TC | Ful 4-A-86 | Spi 1700 | Own W-2204 | Own W-2204 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| 120 | W-703-6x6 | Her RXLD | Pce | Don | Mic | Zen 29-AW-14 | AC | PFX | AL | D-R | Wil | L-R Z-31-S | Ful 5-A-650 | Spi | Own W-703-6x6 | Tim SD-454 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| 121 | W-1600-BG | Bud 6MO-893 | Pce | Don | DeL | Ensign KGNL | AC | PFX | (34) | D-R | Wil | L-R Z-40-S | Ful 4-81-86 | Spi | Own W-1600 | Tim SD-462 | RO TA-71 | Wes | Own | Own | Bdd | Tut | Par |
| 122 | W-1600-BD | Bud 6DC-844 | Bos | Don | DeL | ... | Bos | PFX | ... | D-R | Wil | L-R Z-40-SX | Ful 4-81-86 | Spi | Own W-1600 | Tim SD-462 | RO TA-71 | Wes | Own | Own | Bdd | Tut | Par |
| 123 | W-1600-CD | Cum HB-600 | Cum | Don | Cum | ... | Cum | PFX | ... | D-R | Wil | L-R Z-40-SX | Ful 4-81-86 | Spi | Own W-1600 | Tim SD-462 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| 124 | W-1600-CDS | Cum HBS-600 | Cum | Don | Cum | ... | Cum | PFX | ... | D-R | Wil | L-R Z-40-SX | Ful 4-81-86 | Spi | Own W-1600 | Tim SD-462 | RO TA-71 | B-W | Own | Own | Bdd | Tut | Par |
| | **PETERBILT** | | | | | | | | | | | | | | | | | | | | | | |
| 125 | 270 DD | Cum HB600 (36) | Cum | Don | Cum | ... | Cum | Pfx | ... | D-R | Exl | B-L 13or14DP | B-L 7or8000 | Spi 1700 | Tim 36000-W | Tim U-200-P | RO T-71 | WES | T-S | Tim | Bdd | US | Par |
| 126 | 344 DT | Cum NHB600 (36) | Cum | Don | Lub | ... | Cum | Pfx | ... | D-R | Exl | B-L 13or14DP | B-L 7or8000 | Spi 1700 | Tim 36000-W | Tim SW3012PAX | RO T-71 | Wes | T-S | Tim | Bdd | US | Par |
| 127 | 345 DT | Cum NHBS600 (36) | Cum | Don | Lub | ... | Cum | Pfx | ... | D-R | Exl | B-L 13or14DP | B-L 7or8000 | Spi 1700 | Tim 36000-W | (37) | RO T-71 | Wes | T-S | Tim | Bdd | US | Par |
| 128 | 354 DT | HS400 (gas) (36) | HS | Vor | Win | Zen 1510 | ... | Pfx | LN | AL | Exl | B-L 13or14DP | B-L 7or8000 | Spi 1700 | Tim 27454-TW | (37) | RO T-71 | Wes | T-S | Tim | Bdd | US | Par |
| 129 | 355 DT | HS400 (but) (36) | HS | Vor | Win | Algas | ... | Pfx | LN | AL | Exl | B-L 13or14DP | B-L 7or8000 | Spi 17or1800 | Tim 27454-TW | Tim SD472-W | RO T-71 | Wes | T-S | Tim | Bdd | US | Par |
| | **REO** | | | | | | | | | | | | | | | | | | | | | | |
| 130 | C-19 | Own GC 245 | Han | Uni | Fram | Zen 288V11 | AC | Fed | D-R | D-R | Wil | B&B | War T97 | Spi 1400 | Tim 30,000 | Tim 53,000 | RO TA-14 | ... | ... | MW | D-M | SS | Own |
| 131 | C-21 | Own GC 288 | Han | Uni | Fram | Zen 3-404A | AC | Mod | D-R | D-R | Wil | LNG | Cla 205V | Spi 1500 | Tim 31,000 | Tim H-100 | RO TA-26 | ... | ... | MW | D-M | SS | Own |
| 132 | C-22 | Own GC 310 | Han | Uni | Fram | Zen 288V12 | AC | Mod | D-R | D-R | Wil | LNG | Cla 205V | Spi 1500 | Tim 31,000 | Tim H-100 | RO TA-26 | ... | ... | MW | D-M | SS | Own |
| 133 | C-23 | Con T-6371 | Hof | AM | Fram | Zen 29W14 | AC | Mod | D-R | D-R | Wil | WCL | Cla 270V0 | Spi 1600 | Tim 32,000 | Tim L-300 | Gem 400 | ... | ... | Day | D-M | SS | Own |
| 134 | C-25 | Con T-6427 | Hof | AM | Fram | Zen 29W16 | AC | Mod | D-R | D-R | Wil | WCL | Cla 270V0 | Spi 1600 | Tim 35,000 | Tim Q-300 | RO TA-70 | ... | ... | Day | B-D | SS | Own |
| 135 | 30 | Con R-6513 | Con | AM | Fram | Zen 29W16 | AC | Mod | D-R | D-R | Wil | Roc | Spi 6252-A | Spi 1700 | Tim 36,000 | Tim S-300 | RO TA-72 | ... | ... | Tim | Bdd | SS | Own |
| 136 | 31 | Con R-6602 | Con | AM | Fram | Zen 29W16 | AC | Mod | D-R | D-R | Wil | Roc | Spi 6253 | Spi 1700 | Tim 36,000 | Tim SD-452 | RO TA-72 | ... | ... | Tim | Bdd | SS | Own |
| | **STERLING** | | | | | | | | | | | | | | | | | | | | | | |
| 137 | HD97 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Spi 1600 | Tim 35011H | Tim Q100DPH | RO TA-71 | Loc | Own | Tim | Bdd | Mar | Par |
| 138 | HD105 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Spi 1600 | Tim 35011H | Tim R100DPH | RO TA-71 | Loc | Own | Tim | Bdd | Mar | Par |
| 139 | DD115 (4W-D) | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Spi 1600 | Tim F311ON | Tim 1357W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 140 | HD115 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Spi 1600 | Tim 36000TW | Tim S200P | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 141 | HD145 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Spi 1600 | Tim 36000TW | Tim 79721W | Ro TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 142 | HD115H | Cum HB600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 36000TW | Tim S200P | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 143 | DD145H (4W-D) | Cum HB600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim F409CW | Tim 1758W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 144 | HD145H | Cum HB600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 36000TW | Tim 79721W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 145 | HC97 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Bld 60N | Tim 35011H | Own 97H | RO TA-71 | Loc | Own | Tim | Bdd | Mar | Par |
| 146 | HC105 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Bld 60N | Tim 35011H | Own 137H | RO TA-71 | Loc | Own | Tim | Bdd | Mar | Par |
| 147 | HC115 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Bld 60N | Tim 36000TW | Own 137W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 148 | HC144 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Bld 60N | Tim 36000TW | Own 148W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 149 | HC147 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Bld 60N | Tim 36000TW | Own 147W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 150 | HC155 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Bld 60N | Tim 36000TW | Own 155W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 151 | HC175 | Wau 1456K | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 175W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 152 | HC250 | Wau 1456K | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 251W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 153 | HC115H | Cum HB600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 36000TW | Own 137W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 154 | HC175H | Cum HBD600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 175W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 155 | HC250H | Cum HBD600 | Cum | Don | Cum | ... | Cum | Mod | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 251W | Gem 550 | Wes | Own | Tim | Day | Mar | Par |
| 156 | HBS130 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Spi 1600 | Tim 35011H | Tim SBD1555DPH | RO TA-71 | Loc | Own | Tim | Bdd | Mar | Par |
| 157 | HDS140 | Wau 6MZA | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A43 | Spi 1600 | Tim 35011TW | Tim SD3010P | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 158 | HWS160 | Wau 6SRKR | Wau | Don | Mic | Zen IN-167SJ | AC | Mod | AL | AL | Nat | L-R 14SP | Ful 5A62 | Spi 1700 | Tim 36000TW | Tim SW3010P | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 159 | HWS235 | Wau 1456K | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 27454W | Tim SW456P | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |

*TURN TO PAGE 64, PLEASE*

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| | TRUCK MAKE AND MODEL NUMBER | POWER PLANT ACCESSORIES: ENGINE MAKE AND MODEL | GOVERNOR MAKE (IF STANDARD) | AIR CLEANER MAKE (IF STANDARD) | OIL FILTER MAKE (IF STANDARD) | CARBURETOR MAKE AND MODEL NUMBER | FUEL FEED SYSTEM MAKE | RADIATOR MAKE | ELECTRICAL EQUIPMENT: IGNITION SYSTEM MAKE | GENERATOR-STARTER MAKE | BATTERY MAKE | TRANSMISSION LINE: CLUTCH MAKE AND MODEL NUMBER | TRANSMISSION MAKE AND MODEL NUMBER | UNIVERSALS MAKE AND MODEL NUMBER | FRONT AXLE MAKE AND MODEL NUMBER | REAR AXLE MAKE AND MODEL NUMBER | RUNNING GEAR: STEERING GEAR MAKE AND MODEL NUMBER | SERVICE BRAKES MAKE OF ACTUATION | HAND BRAKES MAKE OF ACTUATION | BRAKE DRUM MAKE | WHEELS-MAKE | SPRING-MAKE | FRAME-MAKE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STERLING (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 160 | HWS160H | Cum H8600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4B86 | Spi 1700 | Tim 36000TW | Tim SW3012P | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 161 | HWS235H | Cum H8600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 27454W | Tim SW456P | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 162 | HCS195 | Wau 140GK | Wau | Don | Mic | Zen IM-167SJ | AC | Mod | D-R | D-R | Nat | L-R 14SP | Ful 5A62 | Spi 1700 | Tim 36000TW | Own 195W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 163 | HCS265 | Wau 145GK | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 265W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 164 | HCS297 | Wau 145GK | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 330W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 165 | HCS330 | Wau 145GK | Wau | Don | Mic | Zen 29-16 | AC | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 330W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 166 | HCS195H | Cum H8D600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Spi 1700 | Tim 36000TW | Own 195W | RO TA-71 | Wes | Own | Tim | Bdd | Mar | Par |
| 167 | HCS265H | Cum H8D600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 265W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 168 | HCS297H | Cum H8D600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4886 | Bld 70N | Tim 27454W | Own 330W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| 169 | HCS330H | Cum H8D600 | Cum | Don | Cum | ... | Cum | Yng | D-R | D-R | Nat | L-R 15SP | Ful 4B86 | Bld 70N | Tim 27454W | Own 330W | Gem 550 | Wes | Own | Tim | Bdd | Mar | Par |
| | STUDEBAKER | | | | | | | | | | | | | | | | | | | | | | |
| 170 | M5 | Own 1M | ... | Uni | Fram | Car WE-532-S(39) | AC | McC | AL | AL | Wil | B&B 9A7 | War T90 (40) | Spi K-1270 | Spi 41 | Spi 2040 | RO T-12 | Loc | Loc | Bdd | Bdd | Own | Mid |
| 171 | M15 & M15A | Own 2M | ... | Uni | Fram | Car WE-532-S | AC | McC | AL | AL | Wil | B&B 9A7 | War T9 | Spi 1358 | Tim 29502 | Tim 53625 | RO T-14 | LOc | War | Bdd | Bdd | Own | Mid |
| 172 | M16 | Own 3M | Hof (38) | Uni | Fram | Car BBRI-514-S | AC | McC | AL | AL | Wil | INL G | War T9 | Spi 1358 | Tim 30004 | Tim 53521 (41) | RO T-14 | LOc | War | MW | MW | Own | Mid |
| | WARD LA FRANCE | | | | | | | | | | | | | | | | | | | | | | |
| 173 | D-1 (1948 only) | Con T-6427 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-32-S | Ful 5A-430 | Spi 5X-16 | Tim 35011-TW | Tim Q-100 | RO TA-66 | ... | Tim | Tim | Day | Mar | Own |
| 174 | D-1B | Con 22R-698 | Hof | Uni | Mar | Str SF-5 | AC | PFX | AL | AL | USL | L-P Z-31-S | Ful 5A-620 | Spi 5X-16 | Tim 35011-TW | Tim 98415 | RO TA-66 | ... | Tim | Tim | Day | Mar | Own |
| 175 | D-1C (1948only) | Con T-6427 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-32-S | Ful 5A-430 | Spi 5X-16 | Tim 35011-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 176 | D1 Diesel | Bud 6DT-468 | Hof | Uni | Mar | ... | AC | PFX | AL | AL | USL | L-P Z-32-S | Ful 5A-430 | Spi 5X-16 | Tim 35011-TW | Tim Q-100 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 177 | D-2B | Con 22R-698 | Hof | Uni | Mar | Str SF*5 | AC | PFX | AL | AL | USL | L-P Z-31-S | Ful 5A-620 | Spi 5X-17 | Tim 35011-TW | Tim Q-100 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 178 | D-2BF | Con 22R-698 | Hof | Uni | Mar | Str SF*5 | AC | PFX | AL | AL | USL | L-P Z-31-S | Ful 5A-620 | Spi 5X-17 | Tim 27454-TW | Tim Q-100 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 179 | D-2BG | Con 22R-698 | Hof | Uni | Mar | Str SF*5 | AC | PFX | AL | AL | USL | L-P Z-31-S | Ful 5A-620 | Spi 5X-17 | Tim 35011-TW | Tim R-300 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 180 | D-2BH | Con 22R-698 | Hof | Uni | Mar | Str SF*5 | AC | PFX | AL | AL | USL | L-P Z-31-S | Ful 5A-620 | Spi 5X-17 | Tim 27454-TW | Tim U-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 181 | D-2K | Wau D-2K | Hof | Uni | Mar | Zen 29-W-14 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5A-620 | Spi 5X-17 | Tim 35011-TW | Tim S-200 | Ro TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 182 | D-2KF | Wau D-2K | Hof | Uni | Mar | Zen 29-W-14 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5A-620 | Spi 5X-17 | Tim 27454-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 183 | D-2KG | Wau D-2K | Hof | Uni | Mar | Zen 29-W-14 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5A-620 | Spi 5X-17 | Tim 35011-TW | Tim R-300 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 184 | D-2KH | Wau D-2K | Hof | Uni | Mar | Zen 29-W-14 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5A-620 | Spi 5X-17 | Tim 27454-TW | Tim U-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 185 | D-2Z | Wau D-2Z | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 186 | D-2ZF | Wau D-2Z | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 187 | D-2ZG | Wau D-2Z | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim R-300 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 188 | D-2ZH | Wau D-2Z | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-42-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim U-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 189 | D-3 | Con R-6572 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 190 | D-3F | Con R-6572 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 191 | D-3G | Con R-6572 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim R-300 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 192 | | | | | | | | | | | | | | | | | | | | | | | |
| 193 | D-3H | Con R-6572 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim U-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 194 | D-3S | Con R-6602 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 195 | D-3SG | Con R-6602 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim S-200 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 196 | D-3SH | Con R-6602 | Hof | Uni | Mar | Zen 29-W-16 | AC | PFX | AL | AL | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 35011-TW | Tim R-300 | RO TA-71 | ... | Tim | Tim | Day | Mar | Own |
| 197 | D-5 Diesel | Cum HB-600 | ... | ... | ... | ... | ... | PFX | ... | D-R | USL | L-P Z-40-S | Ful 5C-650 | Spi 5X-17 | Tim 27454-TW | Tim U-200 | RO TW-74 | ... | Tim | Tim | Day | Mar | Own |
| | WILLYS-OVERLAND | | | | | | | | | | | | | | | | | | | | | | |
| 197 | CJ-2A Jeep | Own | ... | Oak | Fram | Car W0596S | AC | JMS | AL | AL | A-W | Aub 8501-23 | War T90-C | Spi 1261 | Spi 25 | Spi 41-2 | RoT-13108 | Ben | Spi | KHM | KHM | Mat | Mid |
| 198 | 4 WD Truck | Own | | Hof | Oak | Fram | Car W0631S | AC | JMS | AL | AL | A-W | Aub 8501-19 | War T90-A | Spi 1261 | Spi 25 | Tim 51540-M-X3 | RoT-13017 | Ben | Ben | KHM | KHM | Mat | AOS |
| 199 | 4 63 Panel | Own | | ... | AC | ... | Zen 28BV-10 | AC | Har | AL | AL | A-W | Aub 8501-19 | War T-96 | Spi 1261 | Own | Spi 23-1 | RoT-13086 | Ben | Ben | KHM | KHM | Mat | AOS |
| 200 | 2 WD Truck | Own | | ... | AC | ... | Car W0631S | AC | JMS | AL | AL | A-W | Aub 8501-19 | War T-90-E | UP 4100 | Cla F-154 | Tim 51540-M-X3 | RoT-13017 | Ben | Ben | KHM | KHM | Mat | OAS |

FLEET OPERATORS' EXPERIENCE HANDBOOK

# Fleet Replacement Parts Practices

**Some parts, especially of sheet metal, still in short supply, but 61% of fleets say parts stocks are adequate; inventories average $161 per power unit. Maintenance experience is leading basis for kind and quantity of parts stocked; wide variety of parts carried**

*Analysis* **by A.W. GREENE,** *Managing Editor, Commercial Car Journal*

## Are Some Truck Parts Still Hard To Get?

Q. "Are you having difficulty obtaining certain truck replacement parts?"

**A. Yes, 61.83%; No, 36.02%; Some, 2.15%**

**Table 1**

| VOCATIONAL GROUPS | Number of Fleets Reporting | YES (%) | NO (%) | SOME (%) |
|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 69.57 | 26.09 | 4.34 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 38 | 52.63 | 44.74 | 2.63 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 67.35 | 32.65 | ... |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 57.14 | 14.29 | 28.57 |
| INDUSTRIAL Local & Over-the-Road | 5 | 80.00 | 20.00 | ... |
| PETROLEUM Producers & Distributors | 7 | 57.14 | 42.86 | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 61.54 | 38.46 | ... |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 50.00 | 50.00 | ... |
| TRUCK RENTAL | 3 | 66.67 | 33.33 | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 70.00 | 30.00 | ... |
| TOTAL & AVERAGE | 186 | 61.83 | 36.02 | 2.15 |

A NATION-WIDE SURVEY of current truck replacement parts inventories among the leading fleet operations in the country has revealed many interesting and vital facts relating to current stocks, procurement problems, methods of determining required inventories, and many other factors, including a record of the principal replacement parts carried in stock for efficient fleet maintenance.

These facts stand out:

1. The majority of fleets still are having troubles obtaining certain needed parts, at least in sufficient quantities for keeping spares in stock. However, basically, the overall situation has improved, as compared with conditions existing a year ago.

2. Most fleets' stocks of replacement parts are adequate for present needs. Those whose stocks are below par, mostly in one or two items, attribute the lack to supply shortages.

3. The average replacement parts investment per vehicle, of the fleets who report adequate inventories, is $161.65 for each truck and truck-tractor in operation.

4. Maintenance experience is the principal basis upon which fleet maintenance men determine the extent of their replacement parts inventories.

5. The unit replacement system of maintenance is employed by 66.31 per cent of the nation's top fleets. These fleets stock an average of one completely assembled engine (new or rebuilt) to 29 power units; one clutch to 20 power units; one transmission to 33 power units; and one rear axle to 24 power units. As in the case of general replacement parts requirements, maintenance experience is the principal factor in determining how many of each of the various completely assembled component units are stocked.

6. The actual purchases of replacement parts are handled principally by the shop management personnel of each fleet.

7. The variety of replacement parts carried by the majority of the reporting fleets covers a wide range.

8. When parts become obsolete, the majority of fleets return them to their source of supply for credit.

These points summarize the findings which are reported in detail in the accompanying tables and the following comments.

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# Sheet Metal Parts Head Shortage List

Q. "What parts still are scarce?"

**A. Cab and body sheet metal parts (including fenders) lead, with 39% of fleets reporting procurement difficulty. 13 other parts are short, as shown in the table below.**

## Table 1A

| VOCATIONAL GROUPS | Number of Fleets Reporting "YES" | Cab & Body Sheet Metal Parts (%) | Fenders (%) | Body Hardware (%) | Engine Blocks and Assemblies (%) | Cylinder Heads and other Engine Parts (except bearings) (%) | Main and Con-Rod Bearings (%) | Ball and Roller Bearings (%) | Radiators and Radiator Parts (%) | Shifting Lever & Steering Gear Parts (%) | Transmission Gears (%) | Rear Axles (%) | Differential Parts (%) | Axle Housings & other Rear Axle Parts (%) | Brake Drums (%) | Springs (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 16 | 31.25 | 25.00 | 12.50 | 6.25 | 25.00 | ... | 18.75 | 6.25 | 12.50 | ... | ... | 12.50 | 12.50 | 6.25 | 6.25 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 20 | 10.00 | 20.00 | 15.00 | 10.00 | 20.00 | ... | 15.00 | 5.00 | 15.00 | 10.00 | 10.00 | 10.00 | 5.00 | 15.00 | 5.00 |
| GOVERNMENT State, County, Municipal, Federal | 33 | 18.18 | 18.18 | 12.12 | 6.06 | 6.06 | 9.09 | 3.03 | 3.03 | ... | 3.03 | 3.03 | 9.09 | 18.18 | 9.09 | 6.06 |
| CONSTRUCTION Builders, Quarries, Gravel | 4 | 25.00 | 25.00 | ... | ... | 50.00 | ... | ... | ... | ... | ... | ... | ... | 75.00 | 25.00 | ... |
| INDUSTRIAL Local & Over-the-Road | 4 | ... | 25.00 | ... | 25.00 | 25.00 | 25.00 | 25.00 | 50.00 | ... | 50.00 | ... | 25.00 | ... | 25.00 | ... |
| PETROLEUM Producers & Distributors | 4 | ... | ... | ... | 25.00 | ... | ... | ... | ... | ... | ... | ... | 25.00 | ... | 25.00 | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 16 | 31.25 | 18.75 | ... | 6.25 | 6.25 | 12.50 | 6.25 | 12.50 | ... | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 | 12.50 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 9 | 11.11 | 22.22 | 22.22 | ... | ... | ... | 11.11 | 11.11 | 11.11 | ... | ... | 22.22 | 11.11 | ... | ... |
| TRUCK RENTAL | 2 | 100.00 | 50.00 | 100.00 | 50.00 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 7 | 14.29 | ... | ... | 14.29 | 28.57 | ... | ... | ... | ... | ... | 14.29 | 14.29 | 14.29 | ... | 28.57 |
| TOTAL & AVERAGE | 115 | 20.00 | 19.13 | 11.30 | 8.70 | 13.91 | 5.22 | 8.70 | 6.96 | 5.22 | 5.22 | 4.35 | 11.30 | 13.04 | 9.57 | 6.96 |

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### Many Parts Still Scarce

FROM the standpoint of replacement parts procurement, the worst of the postwar supply shortages seem to be pretty well ironed out. However, fleet operators all over the country still are experiencing difficulties to a greater or lesser degree.

Table 1 shows that, of the 187 fleets reporting, 61.83 per cent still are having some difficulty obtaining certain truck replacement parts; 36.02 per cent report no difficulty; and 2.15 per cent say that occasionally some difficulty is experienced but not to any great degree.

As to specific parts, over 50 were listed but none in great enough number to permit the conclusion that a serious shortage of any one exists. Table 1A represents an attempt to tabulate the principal replacement parts reported to be in short supply. Where a specific part was reported by enough fleets to warrant a separate listing, a separate tabulation was made. However, in most cases, the number of individual parts shortages were so low that it was decided to group related items.

The greatest shortage indicated by Table 1A is in the category of cab and body sheet metal parts, which 20 per cent of the reporting fleets find in short supply. In the same category, but listed separately, are fenders, which 19.13 per cent of the fleets find hard to obtain.

Rear axles and their various parts comprise the next group of replacement parts reported to be scarce. Considering them singly, differential gears and pinions, included under the heading "Differential Parts", appear to be hardest to get.

Gears, as a group, seem to be quite scarce. Not tabulated are reports of various miscellaneous gears totalling 13.04 per cent. This does not include transmission gears which, as shown in Table 1A, an additional 5.22 per cent of the reporting fleets indicate as being in short supply.

An attempt was made to determine if the various shortages reported were regional or national in scope. Practically all shortages reported stem from various parts of the country. No one section appears to be worse off than another.

The degree of shortage is not nearly as severe as it had been a year ago. Very few fleets reported vehicle tie-ups due to replacement parts shortages. Table 1B shows that 66.13 per cent of the reporting fleets find overall conditions improved as compared with last year; 23.66 per cent report conditions to be the same as a year ago; and 9.68 per cent find conditions worse than last year.

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# Overall Availability Improved

Q. "Is overall parts procurement improved, worse, or same as last year?"

**A. Improved, 66.13% Same, 23.66% Worse, 9.68%**

## Table 1B

| VOCATIONAL GROUPS | Number of Fleets Reporting | IMPROVED (%) | WORSE (%) | SAME (%) | No Report (%) |
|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 56.52 | 13.04 | 30.44 | ... |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 38 | 68.42 | 5.26 | 26.32 | ... |
| GOVERNMENT State, County, Municipal, Federal | 49 | 57.14 | 12.25 | 30.61 | ... |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 57.14 | 14.29 | 28.57 | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 80.00 | 20.00 | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 71.43 | 28.57 | ... | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 65.38 | 11.54 | 19.23 | 3.85 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 77.78 | ... | 22.22 | ... |
| TRUCK RENTAL | 3 | 100.00 | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 90.00 | ... | 10.00 | ... |
| TOTAL & AVERAGE | 186 | 66.13 | 9.68 | 23.66 | .53 |

## Most Fleets Carry Adequate Supply of Parts

Q. "For efficient maintenance, is your present stock of replacement parts 'Adequate, Inadequate or Excessive?' "

**A. Adequate, 61.83% Inadequate, 30.11% Excessive, 5.91%**

**Table 2**

| VOCATIONAL GROUPS | Number of Fleets Reporting | ADEQUATE (%) | INADEQUATE (%) | EXCESSIVE (%) | No Report (%) |
|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 60.87 | 39.13 | ... | ... |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 38 | 60.53 | 23.68 | 15.79 | ... |
| GOVERNMENT State, County, Municipal, Federal | 49 | 53.06 | 42.86 | 2.04 | 2.04 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 85.71 | 15.79 | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 40.00 | 60.00 | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 71.43 | ... | ... | 28.57 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 57.69 | 34.61 | 3.85 | 3.85 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 88.88 | 5.56 | 5.56 | ... |
| TRUCK RENTAL | 3 | 33.34 | 33.33 | 33.33 | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 70.00 | 20.00 | 10.00 | ... |
| TOTAL & AVERAGE | 186 | 61.83 | 30.11 | 5.91 | 2.15 |

## Why Stocks are Inadequate

Q. "If your present stock of Replacement Parts is 'Inadequate' is this due to 'Parts Shortages, Management Policy, Insufficient Storage Space or Other Cause?' "

**A. Parts Shortages, 73.21%; Insufficient Storage Space, 25.00%; Management Policy, 21.43%**

**Table 2A**

| VOCATIONAL GROUPS | Number of Fleets Reporting INADEQUATE Stock | Parts Shortages (%) | Management Policy (%) | Insufficient Storage Space (%) | Other (%) | No Report (%) |
|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 9 | 55.55 | ... | 22.22 | ... | 33.33 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 9 | 88.88 | ... | 22.22 | ... | ... |
| GOVERNMENT State, County, Municipal, Federal | 21 | 71.43 | 33.33 | 23.81 | 4.76 | ... |
| CONSTRUCTION Builders, Quarries, Gravel | 1 | 100.00 | ... | ... | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 3 | 66.66 | ... | 66.66 | ... | ... |
| PETROLEUM Producers & Distributors | ... | ... | ... | ... | ... | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 9 | 77.77 | 44.44 | 22.22 | ... | ... |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 1 | ... | ... | 100.00 | ... | ... |
| TRUCK RENTAL | 1 | 100.00 | 100.00 | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 2 | 100.00 | ... | ... | ... | ... |
| TOTAL & AVERAGE | 56 | 73.21 | 21.43 | 25.00 | 1.79 | 5.36 |

## How Much Should Fleets Invest in Parts Inventory?

Q. "What is the Estimated Investment in your Replacement Parts Inventory?"

**A. Fleets reporting ADEQUATE current inventory have an average investment of $161.65 for each truck and truck-tractor operated:**

**Table 3**

| VOCATIONAL GROUPS | Number of Fleets Reporting "ADEQUATE" Replacement Parts Stock | Total Number of Trucks and Truck-Tractors Operated | REPLACEMENT PARTS Total Amount Invested | REPLACEMENT PARTS Investment per Unit |
|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 10 | 1,473 | $ 269,550 | $ 182.99 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 18 | 1,949 | 74,500 | 38.22 |
| GOVERNMENT State, County, Municipal, Federal | 22 | 6,976 | 913,741 | 130.98 |
| CONSTRUCTION Builders, Quarries, Gravel | 6 | 413 | 810,000 | 1,961.26 |
| INDUSTRIAL Local & Over-the-Road | 2 | 30 | 1,500 | 50.00 |
| PETROLEUM Producers & Distributors | 4 | 840 | 24,000 | 28.57 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 9 | 3,108 | 73,750 | 23.73 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 14 | 932 | 90,640 | 97.25 |
| TRUCK RENTAL | 1 | 83 | 3,500 | 42.17 |
| TRUCK & BUS FLEETS, MIXED | 6 | 1,617 + | 555,000 | 343.29 |
| TOTAL & AVERAGE | 92 ‡ | 17,421 + | $2,816,181 | $ 161.65 |

+ Includes 1,364 Buses. ‡Does not include 19 fleets who did not supply investment details.

**A. Fleets reporting INADEQUATE current inventory say average investment per power unit ought to be $246. Table below gives details according to vocational groups:**

**Table 3A**

| VOCATIONAL GROUPS | Total Number of Fleets Reporting "INADEQUATE" Replacement Parts Stock | Total Number of Trucks and Truck-Tractors Operated | REPLACEMENT PARTS INVESTMENT NOW IS Total | NOW IS Average Per Power Unit | SHOULD BE Total | SHOULD BE Average Per Power Unit |
|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 5 | 1,087 | $ 102,000 | $ 93.84 | $ 130,000 | $119.60 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 9 | 1,996 | 57,200 | 28.66 | 85,000 | 42.59 |
| GOVERNMENT State, County, Municipal, Federal | 15 | 5,927 | 1,787,000 | 301.50 | 2,806,250 | 473.47 |
| CONSTRUCTION Builders, Quarries, Gravel | 1 | 45 | 7,500 | 166.66 | 10,000 | 222.21 |
| INDUSTRIAL Local & Over-the-Road | 3 | 104 | 12,300 | 118.27 | 22,500 | 216.35 |
| PETROLEUM Producers & Distributors | ... | ... | ... | ... | ... | ... |
| PUBLIC UTILITY Gas Power, Water & Telephone | 7 | 3,475 | 55,100 | 158.56 | 90,200 | 259.57 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice Department Stores, Beverage | 1 | 67 | 500 | 7.46 | 2,000 | 29.85 |
| TRUCK RENTAL | 1 | 290 | 9,000 | 31.03 | 20,000 | 68.96 |
| TRUCK & BUS FLEETS, MIXED | 1 | 174* | 55,000 | 316.09 | 75,000 | 431.03 |
| TOTAL & AVERAGE | 43 + | 13,165 * | $2,085,600 | $158.42 | $3,241,450 | $246.22 |

* Includes 193 Buses. + Does not include 16 fleets who reported inadequate stock of replacement parts but who did not supply investment details.

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### Basic Inventories Adequate

ASIDE from the shortages reported, the basic current replacement parts inventories of the reporting fleets are considered adequate for efficient maintenance. Questioned on this point, 61.83 per cent of the reporting fleets indicated having an adequate supply of most needed parts; 30.11 per cent reported their current stocks to be inadequate; while 5.91 per cent said that their inventories were excessive.

Since most fleets are still shortage conscious, it may come as a surprise that some fleets should report having excessive stocks on hand. Actually, the explanatory comments made by several of the fleetmen reporting excessive inventories reveal the fact that most of these fleets have been gradually disposing their older vehicles and the excesses appear to be in that category.

As for the fleets who report inadequate inventories, the majority, 73.21 per cent, say this is due to supply shortages; 25 per cent attribute it to insufficient storage space; 21.43 per cent point to management policies.

### Parts Inventory Investment

ONE of the most important facts determined from this study is an approximation of what the nation's best maintained fleets consider to be adequate truck replacement parts inventories. This information has been obtained both as a total investment and a dollars-and-cents average per power unit (trucks and truck-tractors) operated.

Of the 111 fleets reporting adequate stocks, 92 supplied information on their cash investment. Using this group's data, Table 3 shows that the total amount invested in truck replacement parts is $2,816,181. These 92 fleets operate 17,421 vehicles, of which 1364 are buses. The foregoing figures permit the calculation of a per-vehicle average which, on the basis of all 92 reporting fleets, amounts to $161.65.

As is the case with all averages, there are fleets whose inventories top the average and there are others whose inventories run considerably lower. The public utilities report the lowest per vehicle investment, $23.73, and the fleets in the construction field show the highest, $1,961.26. The truck-and-bus fleets report the second highest average, $343.29. With two exceptions, the remaining fleets show inventories well under $100 per vehicle.

A similar analysis was made of the inventory investment information furnished by the fleets who reported inadequate truck replacement parts stocks. This information will be found tabulated in Table 3A, and shows what this group's replacement parts investment is now and what the reporting fleetmen believe it should be. These figures also were compiled on the basis of the total investment and the average investment per truck and truck-tractor operated.

On the basis of their present investment, these fleets' parts stocks average $158.42 per truck and truck-tractor operated. This figure is based on a reported total investment of $2,085,600 by 43 fleets operating 13,165 power units, of which 193 are buses. It is interesting to note that, while considered inadequate, this figure is only $3.23 per vehicle short of the figure considered adequate by the 92 fleet operators whose investment inventories are shown in Table 3.

The 43 fleetmen who reported that their stocks were inadequate also supplied a figure which they believed would bring their stocks up to an adequate level. As shown in Table 3A, this group of fleetmen believe that the parts inventories for their fleets should average $246.22 per truck and truck-tractor operated -- $84.57 more than the group who reported having adequate parts stocks on hand.

The governmental fleets -- Federal, state, county and municipal -- set the top figure in this group. They believe that an investment of $473.47 per power unit would be an adequate replacement parts inventory for efficient maintenance and operation of their fleets. The fleets in the retail delivery group would be satisfied with an inventory averaging $29.85 per power unit.

Also of interest is the fact that fleetmen in this segment of the construction group would be satisfied with a parts inventory of $222.21 per power unit -- $1,739.05 less than the fleetmen reporting currently adequate parts stocks.

Of the 5.91 per cent of all fleets participating in this survey who as shown in Table 2, reported that their current truck replacement parts inventories were excessive only a few furnished dollars-and-cents details. There were not enough fleets reporting to warrant the compilation of a table, such as Table 3 or Table 3A. However, it may be of interest to examine the data at hand to determine what these fleets consider to be an excessive parts inventory.

Altogether, seven fleets reported details. They operate 1,101 power units, of which 285 are buses, and their current parts inventory is valued at $520,000. This represents an average of $472.30 per power unit. The reporting fleetmen believe that the total investment in replacement parts should not exceed $296,000, or an average of $203.45 per power unit.

Because fleet maintenance men in the respective vocational groups seem to be at wide variance as to what constitutes an adequate truck replacement parts inventory, several observations should be introduced to clarify the seeming discrepancies.

The first point to consider is the fact that quite a few fleets maintain branch shops for their scattered fleets in which they are obliged to carry limited stocks in addition to the main shop inventory. Consequently, those fleets are obliged to carry higher total inventories.

Individual fleet size is another factor that has a bearing on the total inventory. The more vehicles a fleet has on the road, the greater the periodic replacement potential.

High mileage fleets require greater stocks than low mileage fleets in the same vocational group.

Average vehicle age has a great bearing on the size of replacement parts inventories.

Proximity to source of supply also is a major factor to be considered. Quite a few of the reporting fleets stated that because their shops were quite a distance from parts supply sources, it was necessary to carry large, abnormally large, stocks. On the other hand, fleet shops located near parts supply sources stated that they were able to operate with minimum inventories.

### How Fleets Establish Parts Inventories

HOW fleets determine the kinds of truck replacement parts and the quantities needed of each under normal conditions is another fact determined by the survey. As shown in Table 4, maintenance experience is the

## How Do Fleets Determine Replacement Parts Needs?

Q. "How do you determine the kinds of replacement parts, and quantities of each, you need to carry in stock for efficient maintenance under normal conditions?"

**A. Maintenance Experience, 85.56%; Vehicle Age, 12.30%; Perpetual Inventory, 6.95%**

Table 4

| VOCATIONAL GROUPS | Total Number of Fleets Reporting | Maintenance Experience (%) | Vehicle Age (%) | Perpetual Inventory (%) | Per Cent of Investment in Vehicles (%) | Parts Availability (%) | Other (%) | No Report (%) |
|---|---|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 86.96 | 8.70 | ... | ... | 4.35 | 4.35 | 13.04 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 39 | 74.36 | 12.82 | 5.13 | 5.13 | ... | 2.56 | 12.82 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 89.80 | 14.29 | 2.04 | 6.12 | 4.08 | 2.04 | 6.12 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 100.00 | ... | 28.57 | ... | ... | 14.29 | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 100.00 | 40.00 | ... | ... | ... | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 57.18 | ... | 14.29 | 14.29 | ... | ... | 14.29 |
| PUBLIC UTILITY Gas, Water, Power & Telephone | 26 | 88.46 | 15.38 | 3.85 | 3.85 | ... | ... | 3.85 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 88.88 | 11.11 | 5.56 | ... | ... | 5.56 | 11.11 |
| TRUCK RENTAL | 3 | 100.00 | ... | ... | ... | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 90.00 | 10.00 | 50.00 | 10.00 | ... | ... | ... |
| TOTAL & AVERAGE | 187 | 85.56 | 12.30 | 6.95 | 4.28 | 1.60 | 2.67 | 8.02 |

principal factor, being reported by 85.56 per cent of all fleets participating in the survey.

The table lists several other factors but it seems that some are related to maintenance experience. Vehicle age, for example, implies that as the vehicles become older, maintenance requirements also increase. Perpetual inventory merely is a system that enables a fleet keep up with its maintenance needs.

Per cent of investment, however, is a different factor; although even this basis would seem to require a tie-in with maintenance experience. The percentages reported vary from two to 10 per cent.

Parts availability is directly related to the difficulty or ease with which parts can be procured.

The methods included under the heading "Other" are merely variations or combinations of those reported. There is one exception: A retail delivery fleet reports that it is guided by the truck manufacturer's recommendations.

### Many Fleets Employ Unit Replacement System

THE unit replacement system of maintenance is reported to be employed by the majority of the fleets surveyed. Table 5 shows that 66.31 per cent of the reporting fleets employ this system, 26.74 per cent do not, 5.35 per cent use it in a limited way, 1.60 per cent did not specify.

The ratio of component units stocked to trucks and truck-tractors in operation is shown in Table 5A. On a national average, the reporting fleets stock one complete engine, new or overhauled, for each 29 trucks and truck-tractors in operation. A greater number of completely assembled clutches is stocked, the ratio being one clutch for each 20 power units operated. The table gives ratios on two other major components. The smaller units, such as distributors and carburetors, are covered in Tables 9 and 9A.

The basis of determining the quantity of each major component unit to be stocked is reported in Table 6. As in the case of general replace-

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# Experience Determines Component Units Stock

Q. "What is your basis for determining how many component units (complete units) you should stock?"

**A. Maintenance experience, 64.17%; Percentage of units in use, 11.76%**

Table 6

| VOCATIONAL GROUPS | Number of Fleets Reporting | Maintenance Experience (%) | Percentage of Units in Use (%) | Other (%) | No Report (%) |
|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 78.26 | 8.97 | ... | 17.39 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 39 | 69.23 | 10.26 | 2.56 | 25.64 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 51.02 | 8.16 | 4.08 | 24.49 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 85.71 | 57.14 | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 100.00 | ... | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 57.14 | ... | ... | 42.86 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 46.15 | 7.69 | ... | 50.00 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 72.22 | 11.11 | 5.55 | 22.22 |
| TRUCK RENTAL | 3 | 33.33 | 33.33 | ... | 33.33 |
| TRUCK & BUS FLEETS, MIXED | 10 | 90.00 | 30.00 | 40.00 | ... |
| TOTAL & AVERAGE | 187 | 64.17 | 11.76 | 4.28 | 25.13 |

# Fleets Favor Unit Replacement

Q. "Does your shop practice the UNIT REPLACEMENT system of truck maintenance?"

**A. Yes, 66.31%; No, 26.74%; Some, 5.35%**

Table 5

| VOCATIONAL GROUPS | Number of Fleets Reporting | UNIT REPLACEMENT SYSTEM YES (%) | NO (%) | SOME (%) | No Report (%) |
|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 73.91 | 17.39 | 8.70 | ... |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 39 | 74.36 | 17.95 | 5.13 | 2.56 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 61.23 | 32.65 | 4.08 | 2.04 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 100.00 | ... | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 80.00 | 20.00 | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 100.00 | ... | ... | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 42.31 | 42.31 | 11.54 | 3.84 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 61.11 | 33.33 | 5.56 | ... |
| TRUCK RENTAL | 3 | 66.67 | 33.33 | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 90.00 | 10.00 | ... | ... |
| TOTAL & AVERAGE | 187 | 66.31 | 26.74 | 5.35 | 1.60 |

# Ratio of Component Units to Power Units Operated

Q. "How many of the following COMPONENT UNITS—Engines, Clutches, Transmissions, Rear Axles (complete assemblies)—do you stock for Unit Replacement?"

**A. Engines, 1 to 29 power units; Clutches, 1 to 20; Transmissions, 1 to 33; Rear Axles, 1 to 24.**

Table 5A

| VOCATIONAL GROUPS | Number of Fleets Reporting Unit Replacement System | Number of Truck & Truck-Tractor Operated | COMPONENT UNITS STOCKED (Ratio of Component Units to Truck-Tractors Operated) Engines | Clutches | Transmissions | Rear Axles |
|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 16 | 2,344 | 1:28 | 1:16 | 1:28 | 1:27 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 25 | 4,325 | 1:33 | 1:18 | 1:34 | 1:39 |
| GOVERNMENT State, County, Municipal, Federal | 24 | 4,587 | 1:25 | 1:25 | 1:36 | 1:15 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 491 | 1:18 | 1:11 | 1:16 | 1:8 |
| INDUSTRIAL Local & Over-the-Road | 3 | 104 | 1:17 | 1:8 | 1:26 | 1:26 |
| PETROLEUM Producers & Distributors | 3 | 832 | 1:42 | 1:40 | 1:76 | 1:49 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 10 | 1,880 | 1:54 | 1:40 | 1:40 | 1:38 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 10 | 601 | 1:25 | 1:16 | 1:22 | 1:24 |
| TRUCK RENTAL | 2 | 150 | 1:50 | 1:19 | 1:75 | 1:150 |
| TRUCK & BUS FLEETS, MIXED | 8 | 2,018 * | 1:26 | 1:16 | 1:22 | 1:37 |
| TOTAL & AVERAGE | 108 + | 17,332 * | 1:29 | 1:20 | 1:33 | 1:24 |

* Includes 1,729 Buses + Does not include 16 fleets who stock component units but who did not supply specific totals of each component unit.

# Relation of Fleet Size to Stockroom Personnel

Q. "How many full-time men do you employ in the Parts Stockroom?"

**A. One full-time employee per 128.30 power units or per 143.69 units of all kinds.**

**Table 7**

| VOCATIONAL GROUPS | Number of Fleets Reporting | Total Power Units Operated (Trucks Truck-Tractors and Cars) | Total Trailers Operated | Total Number of Full Time Stockroom Employees | Average Number of Power Units per Stockroom Employee | Average Number of All Units per Stockroom Employee |
|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 15 | 2,424 | 1,773 | 30 | 80.80 | 139.80 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 13 | 3,001 | 444 | 20 | 150.05 | 172.25 |
| GOVERNMENT State, County, Municipal, Federal | 37 | 15,770 | 735 | 133 | 118.57 | 124.10 |
| CONSTRUCTION Builders, Quarries, Gravel | 5 | 452 | 96 | 7 | 64.57 | 78.29 |
| INDUSTRIAL Local & Over-the-Road | 2 | 40 | 11 | 2 | 20.00 | 25.50 |
| PETROLEUM Producers & Distributors | 3 | 1,538 | 219 | 10 | 153.80 | 175.70 |
| PUBLIC UTILITY Power, Gas, Water & Telephone | 11 | 7,782 | 858 | 27 | 288.22 | 320.00 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 4 | 407 | 20 | 6 | 67.83 | 71.17 |
| TRUCK RENTAL | ... | ... | ... | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 3,740 | 61 | 39 | 95.90 | 97.46 |
| TOTAL & AVERAGE | 100 | 35,154 | 4,217 | 274 | 128.30 | 143.69 |

# Fleet Shop Chiefs Make Most Parts Purchases

Q. "Who does the buying of parts in your fleet?"

**A. Fleet Superintendents or Assistant Fleet Superintendents, 40.10%; Service Managers, Foremen or Chief Mechanics, 22.90%; Purchasing Agents, 22.46%**

**Table 8**

| VOCATIONAL GROUPS | Number of Fleets Reporting | Fleet Supt. or Asst. Supt. (%) | Service Manager, Foreman or Chief Mechanic (%) | Purchasing Agent (%) | Parts Clerk (Storekeeper) (%) | Stock Foreman (Parts Manager) (%) | No Reporting (%) | Other (%) |
|---|---|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 39.13 | 17.39 | 34.78 | 8.70 | ... | 13.04 | ... |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 39 | 46.15 | 38.46 | 7.69 | 5.13 | 7.69 | ... | ... |
| GOVERNMENT State, County, Municipal, Federal | 49 | 24.49 | 8.16 | 36.73 | 22.45 | 12.24 | ... | 2.04 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 71.43 | 28.57 | ... | 14.29 | ... | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 40.00 | 20.00 | 20.00 | ... | ... | ... | 20.00 |
| PETROLEUM Producers & Distributors | 7 | 71.42 | 14.29 | 14.29 | ... | ... | ... | ... |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 30.77 | 42.31 | 19.23 | 15.38 | ... | ... | 3.85 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 61.11 | 16.67 | 11.11 | 5.56 | ... | 5.56 | 5.56 |
| TRUCK RENTAL | 3 | 66.67 | 33.33 | ... | ... | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 30.00 | 10.00 | 40.00 | ... | 20.00 | 10.00 | ... |
| TOTAL & AVERAGE | 187 | 40.10 | 22.99 | 22.46 | 11.23 | 5.88 | 2.67 | 2.14 |

CONTINUED FROM PAGE 69

ment parts, reported in Table 4, maintenance experience appears to be the governing factor.

As for the percentage basis shown in the table, most fleets did not supply details. The few that did, stated that they stocked one unit for each make and model of truck in operation. Truck manufacturers' recommendations and availability were the principal reasons given under the heading "Other".

### Fleet Stockroom Personnel

AS FOR the manpower required to handle replacement parts stocks, Table 5 provides an interesting relationship between the number of full-time personnel and the number of vehicles in operation. 100 fleets reported having a full-time personnel of 274 men. These fleets operate a total of 35,154 trucks and truck-tractors, and 4,217 trailers. This means that, as a national average, each full-time stockroom employee handles replacement parts for approximately 128 trucks and truck-tractors or slightly over 143 vehicles, including trailers. This ratio is greater among public utility fleets but considerably lower among industrial fleets, with all other vocational groups somewhere in between.

However, the buying of truck replacement parts is handled largely by shop management personnel; fleet superintendents or assistant superintendents handling this job in about 40 per cent of all fleets participating in the survey. In almost 23 per cent of the fleets, the service manager, shop foreman or chief mechanic do the buying, while approximately 17 per cent of the fleets require the stockroom personnel, either the parts clerk or stock foreman, to do the necessary replacement parts purchasing. Quite a few of the large fleets, 22.46 per cent, turn the job over to the purchasing agent.

Under the heading "Other," some fleets require the various mechanics do their own parts buying. One fleet reported that "second class mechanics" do all parts buying.

Some fleets reported that any one of two or three of the above individuals was authorized to make the necessary purchases.

### Most Fleets Carry a Wide Variety of Parts

IT HAS been said that the majority of the nation's best fleet maintenance shops carry a wide enough variety of truck replacement parts to permit the building of several trucks. This survey seems to corroborate that claim. Four tables were compiled to determine this diversity. Table 9 is confined to the listing of the principal electrical parts stocked by the reporting fleets. Table 9A is devoted to the major engine parts. Table 9B covers other major parts, while Table 9C lists some of the conventional accessories.

Of necessity, many small but important replacement parts, such as the various fittings, bushings, fastenings, and so on, had to be omitted. This holds true with many large parts, such as fenders and body sections. Likewise, the leading basic supply items, such as gasket material used for gasket replacements, flexible and rigid tubing, body finishes, and similar items were not included because of space limitations.

However, despite the indicated omissions, the various items listed in Tables 9 to 9C, inclusive, certainly permit the conclusion that the majority of fleets are well stocked with a large variety of replacement parts for efficient maintenance.

### Obsolete Parts Returned to Dealers

AT SOME time, every fleet is faced with the problem of what to do with obsolete replacement parts. The majority of the reporting fleets, 42.25 per cent, return obsolete parts to the dealer or jobber from whom the purchase was made for full credit against future purchases. 24.06 per cent sell these parts to other fleets that can use them: Governmental fleets advertise for sealed bids and sell to the highest bidder.

Of the remaining fleets, 35.83 per cent reported that they "junk" all absolete parts, and 1.60 per cent stated that such parts were sold to a used parts dealer. It was not clear whether the former group sold such parts for their base metal value or to "grave yards" or used part dealers as usable parts, as in the case of the second group. Consequently, both headings were set up as reported.

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# What Replacement Parts Do Fleets Stock ?

Q. "What replacement parts do you stock when you can get them?"

**A. Most fleets make a practice of stocking principal electrical parts.**

## Electrical Parts Stocked By Fleets

**Table 9**

| VOCATIONAL GROUPS | Number of Fleets Reporting | ELECTRICAL PARTS | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Spark Plugs (%) | Ignition Cables (%) | Distributors (%) | Distributor Parts (%) | Ignition Coils (%) | Breaker Points (%) | Condensers (%) | Regulators (%) | Generators (%) | Generator Parts (%) | Batteries (%) | Battery Cables (%) | Starters (%) | Starter Switches (%) | Stop Light Switches (%) | Headlamps (%) |
| COMMON CARRIER | | | | | | | | | | | | | | | | | |
| Local & Over-the-Road | 23 | 95.65 | 78.26 | 82.61 | 82.61 | 91.30 | 91.30 | 86.96 | 91.30 | 86.96 | 56.52 | 95.65 | 95.65 | 82.61 | 86.96 | 86.96 | 82.61 |
| FOOD DISTRIBUTION | | | | | | | | | | | | | | | | | |
| Bakeries, Dairies, Meats & Other Food Products | 38 | 100.00 | 92.11 | 86.84 | 94.74 | 100.00 | 100.00 | 100.00 | 94.74 | 94.74 | 76.32 | 97.37 | 97.37 | 86.84 | 92.11 | 97.37 | 65.79 |
| GOVERNMENT | | | | | | | | | | | | | | | | | |
| State, County, Municipal, Federal | 49 | 100.00 | 95.92 | 75.51 | 91.84 | 95.92 | 97.96 | 100.00 | 81.63 | 71.43 | 75.51 | 93.88 | 97.96 | 67.35 | 93.88 | 83.67 | 63.27 |
| CONSTRUCTION | | | | | | | | | | | | | | | | | |
| Builders, Quarries, Gravel | 7 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 71.43 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| INDUSTRIAL | | | | | | | | | | | | | | | | | |
| Local & Over-the-Road | 4 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 75.00 | 75.00 | 75.00 | 100.00 | 100.00 | 75.00 | 100.00 | 75.00 | 50.00 |
| PETROLEUM | | | | | | | | | | | | | | | | | |
| Producers & Distributors | 7 | 100.00 | 85.71 | 57.14 | 85.71 | 85.71 | 85.71 | 85.71 | 85.71 | 71.43 | 71.43 | 85.71 | 85.71 | 71.43 | 85.71 | 71.43 | 57.14 |
| PUBLIC UTILITY | | | | | | | | | | | | | | | | | |
| Gas, Power, Water & Telephone | 25 | 96.00 | 84.00 | 76.00 | 84.00 | 80.00 | 88.00 | 88.00 | 68.00 | 64.00 | 60.00 | 100.00 | 80.00 | 44.00 | 64.00 | 64.00 | 24.00 |
| RETAIL DELIVERY | | | | | | | | | | | | | | | | | |
| (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 100.00 | 94.44 | 83.33 | 77.78 | 100.00 | 94.44 | 100.00 | 100.00 | 100.00 | 66.67 | 100.00 | 94.44 | 100.00 | 100.00 | 94.44 | 66.67 |
| TRUCK RENTAL | 3 | 100.00 | 100.00 | 66.67 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 66.67 | 100.00 | 100.00 | 100.00 | 66.67 | 100.00 | 100.00 | 33.33 |
| TRUCK & BUS FLEETS, MIXED | 10 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 90.00 |
| TOTAL & AVERAGE | 184 | 98.91 | 91.30 | 81.52 | 89.67 | 92.39 | 95.65 | 96.20 | 87.50 | 82.61 | 71.74 | 96.74 | 94.57 | 76.63 | 89.67 | 86.41 | 63.04 |

**A. Fan belts and fuel pumps lead list of engine parts most generally stocked. Carburetors, valves and valve springs also high on list.**

## Engine Parts Stocked By Fleets

**Table 9A**

| VOCATIONAL GROUPS | Number of Fleets Reporting | ENGINE PARTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Engine Blocks (%) | Carburetors (%) | Carburetor Parts (%) | Fuel Pumps (%) | Fuel Pump Parts (%) | Mufflers (%) | Engine Valves (%) | Valve Seat Inserts (%) | Valve Springs (%) | Fan Belts (%) |
| COMMON CARRIER | | | | | | | | | | | |
| Local & Over-the-Road | 23 | 65.22 | 82.61 | 60.87 | 82.61 | 65.22 | 78.26 | 73.91 | 56.52 | 69.57 | 91.30 |
| FOOD DISTRIBUTION | | | | | | | | | | | |
| Bakeries, Dairies, Meats & Other Food Products | 38 | 47.37 | 89.47 | 76.32 | 89.47 | 78.95 | 84.21 | 84.21 | 39.47 | 81.58 | 100.00 |
| GOVERNMENT | | | | | | | | | | | |
| State, County, Municipal, Federal | 49 | 51.02 | 71.43 | 71.43 | 91.84 | 73.47 | 61.22 | 75.51 | 51.02 | 73.47 | 95.92 |
| CONSTRUCTION | | | | | | | | | | | |
| Builders, Quarries, Gravel | 7 | 85.71 | 100.00 | 71.43 | 100.00 | 57.14 | 85.71 | 85.71 | 100.00 | 100.00 | 100.00 |
| INDUSTRIAL | | | | | | | | | | | |
| Local & Over-the-Road | 4 | 25.00 | 50.00 | 75.00 | 50.00 | 25.00 | ... | 50.00 | 50.00 | 50.00 | 100.00 |
| PETROLEUM | | | | | | | | | | | |
| Producers & Distributors | 7 | 28.57 | 57.14 | 42.86 | 100.00 | 85.71 | 57.14 | 71.43 | 42.86 | 57.14 | 85.71 |
| PUBLIC UTILITY | | | | | | | | | | | |
| Gas, Power, Water & Telephone | 25 | 20.00 | 64.00 | 48.00 | 88.00 | 56.00 | 40.00 | 48.00 | 12.00 | 40.00 | 88.00 |
| RETAIL DELIVERY | | | | | | | | | | | |
| (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 44.44 | 88.89 | 55.56 | 100.00 | 44.44 | 88.89 | 94.44 | 22.22 | 88.89 | 100.00 |
| TRUCK RENTAL | 3 | ... | 66.67 | 66.67 | 66.67 | 66.67 | 100.00 | 100.00 | ... | 100.00 | 100.00 |
| TRUCK & BUS FLEETS, MIXED | 10 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| TOTAL & AVERAGE | 184 | 48.91 | 78.80 | 66.85 | 90.22 | 73.91 | 70.11 | 76.63 | 44.57 | 73.37 | 96.74 |

**A. Majority of fleets report carrying inventory of springs, clutch, brake and other parts.**

# Other Parts Stocked By Fleets

**Table 9B**

| VOCATIONAL GROUPS | Number of Fleets Reporting | OTHER PARTS | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLUTCH | | | COOLING SYSTEM | | BRAKING SYSTEM | | | | | UNDERCARRIAGE | | | | |
| | | Clutch Facings (%) | Clutch Springs (%) | Pressure Plates (%) | Radiators (%) | Radiator Hose (%) | Brake Shoes (%) | Brake Drums (%) | Brake Lining (%) | Brake Cylinders (%) | Brake Hose (%) | Leaf Springs (Complete) (%) | Spring Leaves (%) | Shock Absorbers (%) | Cab Glass (%) | Radiator Grilles (%) |
| COMMON CARRIER Local & Over-the-Road | 23 | 82.61 | 65.22 | 82.61 | 73.91 | 95.65 | 60.87 | 69.57 | 56.52 | 56.52 | 82.61 | 69.57 | 43.48 | 17.39 | 65.22 | 43.48 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 38 | 76.32 | 47.37 | 97.37 | 81.58 | 97.37 | 76.32 | 68.42 | 78.95 | 78.95 | 89.47 | 71.05 | 57.89 | 47.37 | 36.84 | 26.32 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 71.43 | 53.06 | 71.43 | 61.22 | 100.00 | 53.06 | 38.78 | 83.67 | 67.35 | 81.63 | 53.06 | 44.90 | 51.02 | 42.86 | 14.29 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 100.00 | 71.43 | 100.00 | 100.00 | 100.00 | 71.43 | 71.43 | 71.43 | 100.00 | 100.00 | 85.71 | 57.14 | 14.29 | 57.14 | 57.14 |
| INDUSTRIAL Local & Over-the-Road | 4 | 75.00 | 25.00 | 50.00 | 75.00 | 100.00 | 50.00 | ... | 75.00 | 25.00 | 75.00 | 50.00 | 25.00 | ... | 25.00 | ... |
| PETROLEUM Producers & Distributors | 7 | 57.14 | 42.86 | 57.14 | 14.29 | 85.71 | 57.14 | 28.57 | 42.86 | 57.14 | 85.71 | 42.86 | 71.43 | 42.86 | ... | 14.29 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 25 | 40.00 | 28.00 | 52.00 | 48.00 | 100.00 | 68.00 | 28.00 | 52.00 | 52.00 | 72.00 | 36.00 | 28.00 | 32.00 | 8.00 | 12.00 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 77.78 | 44.44 | 94.44 | 83.33 | 100.00 | 83.33 | 61.11 | 72.22 | 83.33 | 83.33 | 77.78 | 66.67 | 16.67 | 33.33 | 27.78 |
| TRUCK RENTAL | 3 | 66.67 | ... | 100.00 | 66.67 | 100.00 | 66.67 | 66.67 | 100.00 | 66.67 | 100.00 | 100.00 | 33.33 | ... | 33.33 | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 90.00 | 100.00 | 100.00 | 60.00 | 100.00 | 80.00 | 60.00 |
| TOTAL & AVERAGE | 184 | 72.28 | 50.54 | 79.89 | 69.57 | 98.37 | 67.93 | 53.26 | 70.11 | 69.02 | 84.78 | 63.04 | 51.09 | 30.98 | 39.13 | 25.00 |



**A. Filter cartridges, wiper blades and mirrors lead list of accessories.**

# Accessories Fleets Stock

**Table 9C**

| VOCATIONAL GROUP | Number of Fleets Reporting | ACCESSORIES | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Dash Instruments (%) | Speedometer Cables (%) | Wiper Assemblies (%) | Wiper Blades (%) | Rear View Mirrors (%) | Filter Cartridges (%) | Radiator Guards (%) |
| COMMON CARRIER Local & Over-the-Road | 23 | 65.22 | 73.91 | 95.65 | 95.65 | 95.65 | 91.30 | 26.09 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 38 | 60.53 | 76.32 | 94.74 | 100.00 | 100.00 | 97.37 | 23.68 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 36.73 | 67.35 | 79.60 | 97.96 | 85.71 | 97.96 | 12.24 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 71.43 | 71.43 | 100.00 | 100.00 | 100.00 | 100.00 | 14.29 |
| INDUSTRIAL Local & Over-the-Road | 4 | 25.00 | ... | 100.00 | 100.00 | 75.00 | 100.00 | ... |
| PETROLEUM Producers & Distributors | 7 | 14.29 | 57.14 | 71.43 | 85.71 | 71.43 | 85.71 | 42.86 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 25 | 16.00 | 52.00 | 48.00 | 88.00 | 60.00 | 84.00 | 8.00 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 44.44 | 55.56 | 100.00 | 100.00 | 94.44 | 100.00 | 27.78 |
| TRUCK RENTAL | 3 | ... | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 33.33 |
| TRUCK & BUS FLEETS, MIXED | 10 | 90.00 | 70.00 | 100.00 | 100.00 | 100.00 | 100.00 | 40.00 |
| TOTAL & AVERAGE | 184 | 45.65 | 65.76 | 85.87 | 97.83 | 89.13 | 96.20 | 20.11 |

# What Do Fleets Do With Obsolete Parts?

Q. "How do you dispose of obsolete parts?"

**A. Return to dealer or jobber for credit, 42.25%; Dispose as junk, 35.83%; Sell to other fleets, 24.06%**

**Table 10**

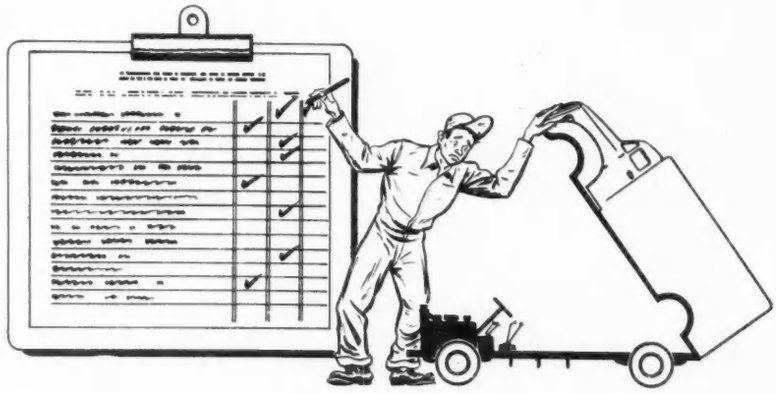
| VOCATIONAL GROUPS | Number of Fleets Reporting | RETURN to Dealer or Jobber (%) | JUNK (%) | SELL to Other Fleet (%) | SELL to Used Parts Dealer (%) | Other (%) | No Report (%) |
|---|---|---|---|---|---|---|---|
| COMMON CARRIER Local & Over-the-Road | 23 | 47.83 | 21.74 | 17.39 | 8.70 | ... | 13.04 |
| FOOD DISTRIBUTION Bakeries, Dairies, Meats & Other Food Products | 39 | 43.59 | 33.33 | 23.07 | 2.56 | ... | 17.95 |
| GOVERNMENT State, County, Municipal, Federal | 49 | 46.94 | 32.65 | 32.65 * | ... | ... | 10.20 |
| CONSTRUCTION Builders, Quarries, Gravel | 7 | 42.86 | 57.14 | 42.86 | ... | ... | ... |
| INDUSTRIAL Local & Over-the-Road | 5 | 80.00 | 20.00 | 20.00 | ... | ... | ... |
| PETROLEUM Producers & Distributors | 7 | 14.29 | 85.71 | ... | ... | ... | 14.29 |
| PUBLIC UTILITY Gas, Power, Water & Telephone | 26 | 34.62 | 42.31 | 15.38 | ... | ... | 23.08 |
| RETAIL DELIVERY (Other than Food) Dry Cleaning, Laundry, Newspaper, Coal & Ice, Department Stores, Beverage | 18 | 27.78 | 38.89 | 5.56 | ... | 5.56 | 34.62 |
| TRUCK RENTAL | 3 | 100.00 | 33.33 | 33.33 | ... | ... | ... |
| TRUCK & BUS FLEETS, MIXED | 10 | 30.00 | 30.00 | 60.00 | ... | ... | 10.00 |
| TOTAL & AVERAGE | 187 | 42.25 | 35.83 | 24.06 | 1.60 | .53 | 14.97 |

* Majority of fleets in this group advertise the sale and request sealed bids.

SERVICE DATA

## CCJ'S RECOMMENDED

# PM Routine



**From a select list of forms CCJ has developed a PM program adaptable to a wide variety of fleets, to save time and improve operation**

A PREVENTIVE MAINTENANCE ROUTINE seems to have as many definitions as there are fleets who follow a system of vehicle servicing. While some systems have just grown like Topsy, many times a workable procedure is the product of trial and error, of constant experimentation and change, of varied requirements, or of progressive planning for improved operation. Many fleets have developed their own forms, techniques, time increments and peculiar practices to suit individual requirements. The type of operation, mileages, speeds, road conditions, schedules weight, type and size of trucks must be considered in developing any plan of systematized maintenance. There is no one PM system for universal adoption--but requirements for any workable system are similar.

There is this in common with any preventive maintenance system: it is designed to provide economical and efficient operation through elimination of road breakdowns, through timely use of manpower, through long life of parts and vehicles, through maintaining engines in peak power conditions. All this is accomplished through timely replacement of parts, periodic inspection and adjustment, lubrication at recommended periods and early location of potential trouble spots. Factors which guide the mechanic in this routine could be listed as precision adjustments, close tolerances, cleanliness, timeliness, thoroughness and safety.

With these requirements in mind CCJ has studied hundreds of select PM forms to establish a system which can be used as a guide to good vehicle maintenance in the normal fleet. The suggestions on these pages represent an ideal PM program, providing for a daily check, engine tune up, four consecutive inspection periods and a trailer check. The outline is comprehensive in that every major step in maintaining vehicles in a good state of repair is called for at one or another of the inspection periods. However, it must be kept in mind that these requirements are flexible, that periods, mileages, procedures can be varied to suit the particular operation. It is assumed that any fleet will modify these procedures, but it is recommended that each step be observed in some measure at some scheduled time in the overall

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# DAILY Check Sheet

**A check up of the vehicle prior to trip will pay off in safety and trouble-free operation**

**Extent of this service depends upon the fleet**

### 1. Engine--check

Crankcase for oil level and oil condition
Coolant level and condition
Hose connections, drain cocks, water pump seals
Fan belt tension and condition
Insulation and connections of all wiring
Governor seal
General exterior appearance (oil, water leaks, etc.)

### 2. Electrical--check

Battery exterior condition
Tightness and condition of cables
Water level
Headlights, tail light stop light
Clearance lights, reflectors, turn signals
Trailer lights

### 3. Control Devices--check

Oil pressure gage
Temperature gage action
Generator charge rate
Fuel gage action
Windshield wiper action
Light switches, dimmer switch
Rear view mirrors, mounting and condition
Tachograph seals
Choke and throttle setting

### 4. Brakes, clutch, steering

Air governor cut-in and cut-out
Air pressure build-up
Clutch pedal travel
Clutch engagement (Start vehicle)
Brake pedal feel
Brake application and release (start vehicle)
Hand brake operation (start vehicle)
Trailer brake synchronization (start vehicle)
Steering for excessive play
Vacuum booster action (engine running)
Hydrovac action (engine running)
Drain air reservoirs

### 5. Tires--check

Tire pressures
Evidence of premature wear
Weak spots, cuts, bruises, evidence of nails
Evidence of wheel misalignment

### 6. Under Vehicle--check

Water, oil, coolant, leakage
Leakage of gasoline and brake fluid
Spring, shackle and U-bolt condition
Air brake lines and connections
Condition of hydraulic brake lines
Looseness of body bolts
Looseness of power train assemblies

### 7. Engine sounds--check

At exhaust for exhaust valve condition
At crankcase breather for condition of intake valves
For connecting rod noises and main bearing
For timing chain, gear noises

### 8. Safety Equipment--check for

Skid chains
Flares and flags
Fire extinguisher
Accident report blanks
First aid kit

### 9. Wash truck

### 10. Fill with gasoline

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program. Previous experience with respect to part failures, unit wear, lubrication requirements, etc. will guide the modification of any PM routine. Mileage, time, shop accomodations will determine the periods for grinding valves, replacing carburetors, points, fuel pumps, spark plugs, etc. For this reason we have not emphasized mileages and the time factor in presenting this system. However, for the purpose of clarity here are mileages kept in mind in setting up the program. Periodic Check Up at 500 to 3000 miles--corresponding to the A Service. Comprehensive Inspection at 5000 to 10,000 miles--corresponding to the B Service. Unit Replacement and Reconditioning at 10,000 to 35,000 miles--corresponding to the C Service, Vehicle Overhaul at 50,000 to 1000,000 miles--corresponding to the normal D Service.

#### THE DAILY CHECK

A DAILY check may or may not conform to the requirements of the fleet. However, this system of quick check-up prior to a road trip is becoming common practice in many fleets. In this respect a "safety" lane is set up on the shop floor or in the yard and a few minutes are taken each day to inspect units, adjust and tighten as outlines. The safety angle has been stressed in many of these fleets and the procedure has paid off in fewer accidents due to reduction of mechanical failures. The time required for this inspection is little, most fleets checking many or all of the items listed while the vehicle is being lubricated, filled with gasoline or checked out. It is to be noted that the suggested outline is rather detailed. Many items can be left to the A service and of course the detail observed in the A service will depend upon the completeness of this check. In many cases, however, the mechanic will take in several items at a glance, checking for water, gas and oil leaks, for instance, while he gives the tires a quick inspection for pressure and condition. Condition of wires, engine exterior, breather, as an example, can be determined while he is checking oil level and so on.

#### PERIODIC CHECK UP

THE Periodic Check-Up corresponding to the A service is sometimes scheduled monthly.

sometimes each 1000 miles. Outside of some major steps in engine tune-up, the procedure resolves itself into a cursory check of the engine, chassis and power train. The time required will vary with the efficiency of the mechanic as well as the thoroughness of the inspection and condition of the truck. Many fleets incorporate this inspection with the lubrication, assigning regular mechanics to the lube job so that they can check various units as they lubricate. Time in any event should not consume over one hour.

### COMPREHENSIVE INSPECTION

THE Comprehensive Inspection corresponding to the B service is just what the name implies, a complete check-up, adjustment and lubrication of the vehicle, regardless of the time or mileage schedule observed by the fleet. Its purpose is to catch potential troubles before they occur, to keep lubrication to factory requirements and to provide the shop with a complete record of the condition of the vehicle. It is mandatory that this inspection be scheduled regularly, that the job be thorough and that an adequate record be kept. It will include items listed for the Periodic Check and will take the place of the A service for that date. A vehicle passing this inspection should be ready for the next 5000 to 10,000 miles without attention required for valves, power train units, rings, bearings, suspension system, etc.

This service has been divided into two functions, engine tune up and general inspection and adjustment. It is assumed that fleets may prefer to pull a tune up at certain intervals apart from the regular B service. Others may prefer to include the tune up with the B service. The tune up procedure has been prepared so that the mechanic can make a quick systematic check and adjustment in what we like to call six positions. Thus the job is completed with a minimum of wasted effort, checking time is expedited and the procedure developed into a standard routine. Since a well-tuned engine is the first requisite of economical and efficient operations, fleets may like to emphasize this phase of maintenance in this manner.

*TURN TO PAGE 76, PLEASE*

# PERIODIC Check-Up

**The A service is correlated with lubrication at mileages consistent with fleet requirements. Recommended steps are given in detail**

#### Fuel System

Clean fuel pump bowl
Clean carburetor fuel strainer
Clean and refill carburetor air strainer
Check condition and tightness of lines and connections
Check tightness of carburetor flange and manifold bolts

#### Ignition

Inspect ignition wires for tight connections, insulation
Clean grease from high tension wires
Clean distributor housing, rotor, contact points
Clean setting and condition of points

#### Electrical

Take specific gravity reading
Clean exterior of battery, terminals if necessary
Check and tighten all light wiring connections

#### Lubrication

Change oil if necessary
Lubricate chassis as required
Check oil level of trans, differential, air compressor
Clean magnetic fill plugs

#### Engine

Check circulation of cooling system
Inspect radiator for exterior clogging
Check operation of pressure release valve in radiator cap

#### Brakes and steering

Inspect condition of master cylinder brake fluid
Check steering linkage for looseness, wear

#### Chassis

Inspect spring clips, U-bolts, shackles
Check radiator hold downs, tie rods
Check for wheel run-out and balance on lift
Check power train for noise, prop. run-out on lift
Tighten wheels and rim nuts
Tighten drive flange nuts

#### Body

Check bumpers, fenders, running boards, hood latch
Check cab doors, glass, upholstery
Inspect sheet metal for rust, dents, finish

#### Road test--check

Brakes for application and release
Brakes for side pull, grabbing, overheating
Clutch for engagement, slippage
Power train for noise, vibration
Steering for road wander, side pull, shimmy
Spark timing (slight ping on (acceleration)
Bearing, ring, piston and valve noises
Speedometer operation

# COMPREHENSIVE Vehicle Inspection

**The B check features complete engine tune up. Will insure correct adjustments, tip-top condition of units, efficient engine operation**

### 1. Engine and Chassis

Check circulation of coolant and for internal leakage
Check condition of muffler, exhaust, tail pipe
Check gas tank mounting, connections, lines, vents
Drain gas tank sediments--rust or water
Clean overhead valve passages with air
Flush cooling system
Clean crankcase ventilating system
Adjust throttle and check choke linkage
Check starter brushes, commutator, switch
Clean generator armature, check brushes for wear, tension, arcing
Drain crankcase, flush and refill
Clean or refill oil filter element

### 2. Brakes and Steering

Check hydraulic line pressure
Check wheel cylinders and master cylinder for wear, operation, seals
Check and clean air strainer in hydrovac or power cylinder
Inspect all flexible lines for kinking, dents, tightness
Lubricate hydrovac, test for leaks if necessary
Check condition of brake lining and drums
Adjust drag link, tie rod and tightness of steering arm
Check king pin and bushings for wear
Check camber, caster, king pin inclination, turning radius, toe in
Check rear wheel alignment
Check lube level of steering gear box

### 3. Air Brakes

Check compressor for build-up, unusual noises, overheating
Drain compressor crankcase and refill (self-lubricated types)
Check for presence of oil in reservoir tank
Check and clean compressor air strainer
Clean carbon from discharge cavity and lines if necessary
Check adjustment of unloader valves
Check slack adjusters for operation
Measure push rod travel, adjust if necessary
Test for air leakage with brakes released and with brakes applied

### 4. Suspension System

Check and tighten spring clips, shackles, U-bolts
Check springs for fatigue, broken leaves, shifting
Check spring seat bearing for leaks, wear, lube level
Check axle for alignment
Check overload springs, pads, seats for wear

### 5. Power Train

Check condition of drive flanges
Check propeller shaft for run-out
Check clutch facing for wear
Check oil level of differential, refill if necessary
Check center bearing for wear, leakage, lube level
Tighten transmission housing bolts and supports
Check operation of transmission--shifting, performance in each gear
Check grease retainers in wheels, adjust wheel bearings if necessary
Rotate tires
Check mating of duals

### 6. Body

Remove body and fender dents
Tighten all body bolts
Touch up rusty spots
Replace rotted or damaged body parts
Repair torn or worn upholstery
Tighten cab mounting bolts

### 7. Road Test

Test for governor setting
For spark timing
Trailer and tractor brake synchronization
Brake adjustment, application and release
Clutch for operation and noise
Transmission and differential noise and operation
Engine cooling at high speed
Cooling system circulation at high speed
Engine noises on pull, acceleration, high speed conditions
Steering and alignment conditions

*CONTINUED FROM PAGE 75*

**CHECK FORMS**

IT HAS been our policy to omit reference to physical make up of these various forms due to the complexities mentioned. There is a wide variety of types which can be adapted to the average fleet. Physical appearance will be determined in some measure by the extent of service, as well as degree of skill of mechanic. Some forms include all services, that is, the A, B, C, D service outline is used for each service, the part being used which is applicable to the particular service. In other instances four separate sheets are used to facilitate filing and recording. In some cases sheets are made up with gummed backs so that the desired service record can be pasted to the sheet. Some organizations list more detail than others, the idea being that it is better to be over-inclusive than have the mechanic miss items. In this respect tolerances, adjustments, and directions for checking are provided on the check sheet. Other fleets operate on the contention that experienced mechanics need only an outline or reminder and make provision for only check data necessary for filing. Obviously both ideas have merit.

From a study of existing forms as well as contact with fleet operators it seems that the following qualities characterize the most practical check sheet:

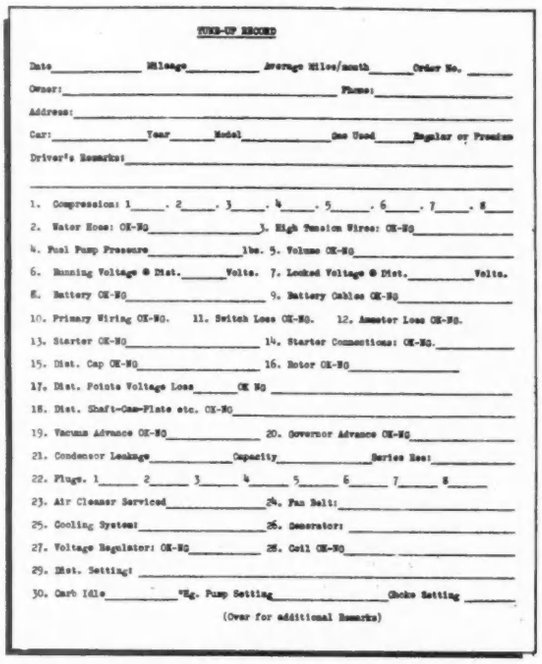
1. It should be as brief, simple, concise as is conducive to adequate service.
2. It should provide for as little mechanic notations as possible.
3. It should make provision for all data necessary for shop vehicle records.
4. It should be of grease-resisting material if possible
5. It should have provision for a work order on back.
6. It should be of convenient size and shape for office filing.

These are rather generous and general specifications and will show how requirements will be determined by the individual fleets.

# ENGINE Tune Up

**Operating efficiency requires precise and timely engine tune up**

This tune up procedure should be considered one of the major steps in the Comprehensive Vehicle Inspection.



TUNE-UP RECORD

Date_____ Mileage_____ Average Miles/month_____ Order No. _____

Owner:_____ Phone:_____

Address:_____

Car:_____Year_____Model_____Gas Used_____Regular or Premium

Driver's Remarks:_____

_____

1. Compression: 1_____. 2_____. 3_____. 4_____. 5_____. 6_____. 7_____. 8___

2. Water Hose: OK-NG_____3. High Tension Wires: OK-NG_____

4. Fuel Pump Pressure_____lbs. 5. Volume OK-NG_____

6. Running Voltage @ Dist._____Volts. 7. Locked Voltage @ Dist._____Volts.

8. Battery OK-NG_____ 9. Battery Cables OK-NG_____

10. Primary Wiring OK-NG. 11. Switch Loss OK-NG. 12. Ammeter Loss OK-NG.

13. Starter OK-NG_____ 14. Starter Connections: OK-NG._____

15. Dist. Cap OK-NG_____ 16. Rotor OK-NG_____

17. Dist. Points Voltage Loss_____OK NG _____

18. Dist. Shaft-Cam-Plate etc. OK-NG_____

19. Vacuum Advance OK-NG_____ 20. Governor Advance OK-NG_____

21. Condensor Leakage_____Capacity_____Series Res:_____

22. Plugs. 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8_____

23. Air Cleaner Serviced_____24. Fan Belt:_____

25. Cooling System:_____26. Generator: _____

27. Voltage Regulator: OK-NG_____ 28. Coil OK-NG_____

29. Dist. Setting: _____

30. Carb Idle_____*Eg. Pump Setting_____Choke Setting _____

(Over for additional Remarks)

## Position 1--Preliminary

1. Check tightness of cylinder head bolts (torque wrench)
2. Clean distributor cap wells, check cap for condition
3. Inspect, clean and adjust distributor points
4. Check distributor mechanical advance operation
5. Check distributor shaft and gear play
6. Oil distributor wick and shaft
7. Inspect, clean and adjust spark plugs
8. Clean generator, inspect brushes for wear, tension, arcing
9. Inspect, clean and oil starter
0. Free heat control valve

Note: Some fleets may remove distributor and test on synchroscope, test coil and condenser as standard operating procedure

## Position 2--Electrical

Make high rate discharge test
Check voltage drop in starter, charging and ignition circuit
Check charge rate, voltage setting and cut-out with volt-ammeter

## Position 3--At engine idle

1. Check vacuum spark advance mechanism actuation
2. Remove air strainer, check float level at carburetor throat
3. Check spark timing with timing light
4. Set engine idle speed
5. Test fuel pump for capacity and pressure
6. Set carburetor with vacuum gage
7. Check and adjust valves if necessary

## Position 4--At fast idle

1. Check for smoke at exhaust
2. Check tail pipe for restrictions
3. Check for blow-by at crankcase breather

## Position 5--Engine stopped

1. Recheck for water and oil leaks
2. Check engine temperature
3. Take compression readings

## Position 6--Road test

1. Check for spark timing (slight ping on acceleration on pull at 20mph)
2. Note pick up and response to acceleration
3. Make fuel consumption test

# TRAILER Check Sheet

**A suggested guide for keeping the trailer in peak operating condition**

## Daily

Drain moisture from air reservoir
Check tire pressures
Check tires for wear, foreign objects, weak spots
Tighten wheel and hub mounting bolts
Check light operation
Clean reflectors
Check tools and equipment

## Monthly

Check travel of push rods
Adjust brakes if necessary
Inspect hose assemblies and gaskets
Check lining thickness
Inspect air brake reservoir for looseness and damage
Check electrical system
Check dual tire mating
Check axle alignment
Inspect entire support assembly
Check operation of tire carrier
Check coupler operation
Inspect and clean underconstruction

## Semi-Annually

Pull wheels and check drums
Inspect brake linkage and shoes for action
Test trailer brakes, for action, side pull, synchronization
Inspect hose connections for chafing, looseness, deterioration
Check wheel bearings for chips, pits, wear
Repack wheel bearings
Inspect body components
Check support legs and axle for damage or bends
Check axle for alignment and camber
Check springs, hangers, mounts
Inspect coupler base for looseness
Check friction surfaces, hook and lock assembly for wear
Clean base plate thoroughly

*TURN TO PAGE 78, PLEASE*

# UNIT Reconditioning

**The C service is the time to check and replace accessories. re-ring. grind valves. and adjust bearings to insure economical operation**

### Engine

Vibration damper--check and tighten
Check carbon--remove if necessary
Replace or adjust bearings if necessary
Re-ring engine if compression is low
Remove valve covers, clean and check condition
Replace valve springs on valve job
Grind valves if compression test indicates
Remove oil pan, clean engine and pump screens

### Ignition and carburetion

Distributor--check and replace or overhaul if necessary
Replace condenser, points, rotor and inspect cap
Replace spark plugs
Replace fuel pump
Check carburetor, replace jets or substitute new unit

### Cooling System

Replace fan belts
Check water pump for wear, corrosion, leakage
Reverse flush cooling system
Replace thermostat if necessary

### Electrical

Turn down generator commutator if scored
Replace generator brushes
Check starter on test bench
Overhaul starter, replace brushes, turn down commutator

### Suspension

Rebush front end if worn
Balance wheels, check alignment
Rebush springs, replace shackles
Inspect and replace springs if weak or worn

### Power Train

Remove wheels, check lining and drums for wear
Check wheel cylinders for scoring
Wheel bearings--remove, clean, repack and adjust
Drain, flush and refill transmission, rear end, center bearing
Test differential for back lash--adjust if necessary
Replace U-joints and seals if worn
Check transmission main shaft for wear

# Vehicle OVERHAUL

**Reconditioning at D service involves overhaul of engine. chassis. power train. Precision adjustments will return truck to new standards**

### Engine

Remove engine and steam clean
Recondition cylinders, hone or rebore
Mike crankshaft replace or grind if necessary
Recondition or replace pistons
Install new piston pins, rings, bearings
Install new valves, springs, valve guides, grind seats
Clean engine compartments, all oil lines
Overhaul oil pump if necessary
Check timing chain or gear wear, replace units if worn
Install new engine accessories--generator, fuel pump, water pump, distributor
Clean cooling system with chemical
Check camshaft bearings and lobe wear
Check tappets, rocker arms and push-rods, replace if necessary

### Power Train

Remove transmission cover, check tooth contact and gear wear
Remove rear axle center, check tooth contact and backlash
Remove rear axle, clean and check for fatigue, alignment
Check, tighten or rebush radius rods

### Clutch and Brakes

Check clutch facing, springs, pressure plate, rebuild if necessary
Recondition brake drums if scored
Relign brakes, check shoes for alignment, fatigue
Replace or recondition wheel and master cylinders
Remove, clean, check or recondition brake booster cylinder

### Steering

Rebush front end, check steering gear for wear
Replace steering linkage parts

### Body

Wash and remove rust
Replace damaged parts
Repaint

*CONTINUED FROM PAGE 76*

### UNIT RECONDITIONING

THE Unit Replacement and Reconditioning period is so named because this is the logical point to check such units as distributor, water pump, oil pump, valves, rings, bearings, clutch, brakes, cooling system and power train units with an eye to trouble-free operation for the next 10,000 miles at least.

This service will naturally include the Periodic-Check-Up and the Comprehensive Vehicle Inspection, extent of the service being governed by the degree of work done at each of the previous periods.

### VEHICLE OVERHAUL

THE Vehicle Overhaul Guide, corresponding to the D Service, is made up of the Periodic Check-Up, the Comprehensive Vehicle Inspection, and the Unit Replacement and Reconditioning. At this period it is common practice to remove the engine, steam clean it, replace pistons, rings, valves, and bearings if necessary. Cylinders may be rebored and crankshafts ground. In addition, all accessories are checked and reconditioned to factory standards. This will include units listed in addition to all engine accessories. Whether to repair, replace or adjust will be determined by the type of service or degree of reconditioning which has been covered in previous service.

# WEAR LIMITS

## of Axles, Brakes and Engine Parts

WHETHER to repair, replace or continue parts in operation for a few more thousand miles is a major decision in these days of high speeds, heavy loading and rigid schedules. Operating efficiency, economy and safety is directly related to the timeliness of parts replacement and overhaul.

Fortunately manufacturers have been able to supply recommendations for wear limits, operating tolerances and clearances applicable to normal operating requirements for a number of replacement parts. The suggestions supplied are considered practical for the normal conditions. Some fleets may develop their own wear limits or modify these, but good maintenance dictates that wear of parts and unit adjustments be kept to within approximate figures provided here.

SERVICE DATA

## Bearings

### FEDERAL-MOGUL CORP.

#### TOLERANCES

CRANKSHAFT--A shaft worn to the extent that the bearing surfaces are ridged and scored, is unfit for use and must be reground.

Journals: Should not be more than .003 in. out-of-round.

Crankpins: Should not be more than .002 in. out-of-round. If main journals or crankpins exceed these tolerances, the shaft is unfit for further use and must be reground.

CRANKCASE--Bearing Saddle Bores: Must be round within .002 in. and in true alignment lengthwise for use with precision insert main bearings.

MAIN BEARINGS--Spread (width across the open ends) should exceed the crankcase bore diameter by .005 in. to .020 in., depending on the thickness and structural stiffness of the bearing.

CONNECTING RODS--Crankpin bearing bore and the piston pin bushing bore must be parallel with each other within .001 in. in 6 in., and the twist between these bores must not exceed .001 in. in 6 in.

Rod Bore: Must be round within .002 in.

Rod Bearings: Spread (width across the open ends) should exceed the rod bore diameter by .005 in. to .020 in., depending on the thickness and structural stiffness of the bearings. The Ford V8 rod bearings are exceptions to this rule.

CAMSHAFT BEARINGS—After an engine has used up two sets of main and connecting rod bearings, the camshaft bearings are a potential source of trouble due to wear and should be replaced.

#### OIL CLEARANCES

Recommended crankshaft end clearance at thrust bearing and connecting rod end clearance:

| Diameter Crankshaft Journal | Recommended End Clearance |
|---|---|
| 2 to 2 3/4 in. | .004/.006 in. |
| 2 13/16 to 3 1/2 in. | .006/.008 in. |
| Over 3 1/2 in. | .008/.010 in. |

MAIN and CONNECTING ROD BEARINGS: Oil clearances for pressure (force feed) lubrication are recommended as follows:

| Dia. of Crankshaft Journal or Crankpin | Tin Base Babbitt or Bermax High Lead Babbitt | Genuine Cadmium Silver Copper | Federaloy B-30 Copper Lead |
|---|---|---|---|
| 2 to 2 3/4 | .0015 | .0020 | .0025 |
| 2 13/16 to 3 1/2 | .0025 | .0030 | .0035 |
| 3 9/16 to 4 | .0030 | .0035 | .0040 |

Note A: A tolerance of Plus .001 in. is allowable on the clearances specified.

Note B: Oil clearance as shown in this chart is the difference in the diameter of the crankshaft journal or crankpin and the bore diameter of the bearing.

### CLAWSON AND BALLS, INC.

Excerpted from the "Engine Bearing Manual". All measurements must be taken with the utmost care and must be accurate to the nearest .0002 in.

#### TOLERANCES

PRECISION INSERT BEARINGS

Elongation of Bearing Bore: In some cases the bore for the insert bearing may be elongated. If this exceeds .002 in., the rod should be exchanged for a new or reconditioned one.

Rod Alignment: Rods may be bent or twisted. If the center line of the crank pin hole and piston pin hole are not parallel within .001 in. in 6 in., they should be aligned.

#### CRANKSHAFT BEARINGS

To be usable as it is, the shaft must be round within .003 in. or less at each of the main journals, and the diameter will be within .001 in. of the original diameter. The crank pin journals should be round within .002 in., and the diameter must be within .001 in. of the original. To check, a brass shim clamped between the shaft and the bearing (.001 in. thicker than the recommended oil clearance) should lock the shaft. If saddle bores are more than .002 in. or more out of round, semi-finished bearings of sufficient undersize should be used.

#### OIL CLEARANCES

The general rule for the size of the oil clearance, for pressure lubricated bearings, is to allow .001 for each inch of journal diameter, subject to modification depending upon the bearing metal alloy used, i.e.:

| TYPE OF BEARING | SHAFT DIAM. 2 to 2 3/4 in. | SHAFT DIAM. 3 9/16 to 4 in. |
|---|---|---|
| Titan ring true Tin base babbitt | .0015 to .0025 | .0025 to .0035 |
| Cadmium | .002 to .003 | .003 to .004 |
| Copper-Lead | .0025 to .0035 | .0035 to .0045 |

| TYPE OF BEARING | SHAFT DIAM. 2 13/16 to 3 1/2 in. |
|---|---|
| Titan ring true Tin base babbitt | .003 to .004 |
| Cadmium | .0035 to .0045 |
| Copper-Lead | .004 to .005 |

#### END CLEARANCES

For the rods, it is sufficient to be sure that the fillet at the ends of the crank pin does not bind on the end of the crank pin bearing. A clearance of .004 in. to .010 in. is recommended.

For the crankshaft, end play or clearance is recommended as follows:

| DIAMETER CRANKSHAFT JOURNALS (IN.) | | |
|---|---|---|
| 2 to 2 3/4 | 2 13/16 to 3 1/2 | 3 1/2 plus |
| CRANKSHAFT END CLEARANCE (IN.) | | |
| .004 to .006 | .006 to .008 | .008 to .010 |

## Clutches

### LIPE-ROLLWAY

Pressure plates badly scored or dished in excess of 0.015 in. should be replaced. Driving lugs of new pressure plates must fit freely in the slots of the flywheel ring with a clearance of 0.003-0.004 in.

### BROWN-LIPE CLUTCH

#### PRESSURE PLATE

Maximum free movement in driving slots, .015 in.; maximum fulcrum wear, 1/32 in.; maximum depth of scores which permit salvage by regrinding, 1/16 in.; maximum depth of scores permitting reinstallation without grinding, .005 in.; maximum out-of-flat permissible without regrinding, .007 in.

#### LEVERS

To be scrapped if contact areas are pitted or grooved.

#### RELEASE SLEEVE

To be scrapped if total wear where levers contact is over 1/32 in. Clearance between bushing and shaft-maximum, .007 in.

#### SPRING

Percent load loss permissible before scrapping, 20 per cent.

#### DRIVEN PLATE

Replace if oil or grease on surface. Replace when worn to rivet heads. Replace if burned. Maximum play in disc splines measured at periphery, 1/8 in. if excessive spline wear occurs, check alignment between transmission and engine. Maximum free play at periphery due to damper parts, 1/16 in. (Scrap disc

# WEAR LIMITS
## Of Axles, Brakes and Engine Parts

CONTINUED FROM PAGE 78

if more.) Permissible warpage: (Use indicator) face runout, .010 in.

**COVER (FLYWHEEL RING)**
Maximum total freedom of pressure plate in slots, .015 in.

**RELEASE BEARING**
Grease, High Temperature B.&RB.
Adjustment--by turning castellated adjusting ring to correct free pedal travel.

**CLUTCH RELEASE SHAFT**
Maximum play in bushings, .015 in.

**TWO-PLATE CLUTCH**
Same instructions as above apply plus following additions: Intermediate Drive Plate. Clearance on drive pins, as measured by peripheral play, .009 in. Scoring--maximum permitted same as pressure plate. Out-of-Flat--maximum permitted same as pressure plate.

# Pistons and Rings

**AMERICAN HAMMERED**

**NOTE:** In many cases engine manufacturers specifications will vary from those given below and these specifications should be followed where available. In the absence of the engine manufacturers' specifications, the following specifications will prove of value.

| Ring Diameter | Recommended Minimum | Recommended Maximum | Serviceable Minimum | Serviceable Maximum |
|---|---|---|---|---|
| 2 - 2 31/32 | .010 | .020 | .010 | .030 |
| 3 - 3 15/32 | .010 | .020 | .010 | .040 |
| 3 1/2 - 3 31/32 | .015 | .025 | .015 | .045 |
| 4 - 4 31/32 | .015 | .025 | .015 | .050 |
| 5 - 5 15/32 | .015 | .025 | .015 | .055 |
| 5 1/2 - 5 31/32 | .020 | .030 | .020 | .055 |

Piston ring end clearance should always be measured at the smallest part of the cylinder bore, usually at the bottom of the cylinder below the ring travel. If ring clearance is in excess of the maximum serviceable clearance, a ring .010 in. larger in diameter should be used and the end clearance adjusted.

| | Piston Ring Side Clearance Minimum | Maximum |
|---|---|---|
| Top Groove | .0015 | .005 |
| 2nd Groove | .001 | .005 |
| Other Grooves | .001 | .002 |

**CYLINDER WEAR**

Any cylinder that is worn or tapered .015 in. or more should be rebored even though the rings are designed to operate in much greater tapers. Maximum out-of-roundness permissible is .005 in. If the cylinder has holes or pockets or waves which are more than .001 in. deep, or a ridge at the bottom of the ring travel area, the cylinder should be rebored.

SEALED POWER CORP.

**CYLINDER WEAR**

Sealed Power Individually Engineered Ring Sets with expander type cast iron oil rings are recommended for use in engines with cylinders tapered up to .006 to .008 in.

The Individually Engineered Sets with expander type steel oil segment oil rings are recommended for use in engines with cylinders tapered from .008 to .015 in. Beyond .015-in. taper, reboring is recommended.

**RING TO GROOVE CLEARANCE**

Clearance between new ring and ring groove should not be less than .0015 in., and not more than .004 in. Provided pistons are not cracked or defective in any way, they can be salvaged by having the worn ring groove machined and fitted with GI-60 inserts. In engines where the top ring groove is known to wear excessively, GI-60 inserts should be installed in replacement pistons.

**PISTON TO CYLINDER FIT**

If the piston skirt diameter is such that the clearance between it and the smallest diameter of the cylinder is 1 1/2 times as much as the clearance recommended by the manufacturer, the pistons should be resized. Pistons should always be resized before piston pin holes are reamed for replacement pins.

McQUAY-NORRIS MFG. CO.

**PISTON RING END CLEARANCE**

| Diameter | Minimum End Clearance |
|---|---|
| 2 in. - 2-31/32 in. | .007 - .017 |
| 3 in. - 3-31/32 in. | .010 - .020 |
| 4 in. - 4-31/32 in. | .013 - .025 |
| 5 in. - 6-31/32 in. | .017 - .032 |

**PISTON CLEARANCE**

Cam "A"--Chevrolet Six cast iron pistons must be cam ground with cam "A". Any cast iron piston in the automotive range can be cam ground with cam "A" at the option of the user. Use the following clearances when finishing either round or with cam "A":

| Cyl. diam. | 3 | 3-1/4 | 3-1/2 | 3-3/4 | 4 |
|---|---|---|---|---|---|
| All lands | .012 | .013 | .014 | .015 | .016 |
| Skirt | .003 | .00325 | .0035 | .004 | .0045 |
| Cyl. diam. | 4-1/4 | 4-1/2 | 4-3/4 | 5 | |
| All lands | .017 | .018 | .019 | .021 | |
| Skirt | .00475 | .00525 | .00575 | .00625 | |

Cam "B"--Ford "A" and "V8" pistons, and all pistons of the all-aluminum type having a split skirt completely open from top to bottom, use cam "B". Any Nelson wide strut or narrow strut Bohnalite piston can be cam ground with cam "B" at the option of the user. Use the following clearances when grinding round. Skirt clearance should be cut in half when using cam "B":

| Cyl. diam. | 3 | 3-1/4 | 3-1/2 | 3-3/4 | 4 |
|---|---|---|---|---|---|
| All lands | .020 | .021 | .023 | .025 | .027 |
| Skirt | .00225 | .0025 | .00275 | .00325 | .0035 |
| Cyl. diam. | 4-1/4 | 4-1/2 | 4-3/4 | 5 | |
| All lands | .030 | .033 | .036 | .039 | |
| Skirt | .00375 | .004 | .00425 | .0045 | |

Cam "C"--Must be used on all T-slot or U-slot flexible skirt all-aluminum pistons, having a solid section at bottom of skirt, from 2-3/4 to 3-7/16 in. diameter.

Cam "D"--Must be used on all T-slot or U-slot flexible skirt all-aluminum pistons, having a solid section at bottom of skirt, from 3-1/2 to 4-15/16 in. diameter.

Use the following clearances with both cam "C" and "D":

| Cyl. diam. | 3-1/4 | 3-1/2 | 3-3/4 | 4 |
|---|---|---|---|---|
| All lands | .021 | .023 | .025 | .027 |
| Skirt | .00175 | .002 | .00225 | .0025 |
| Cyl. diam. | 4-1/4 | 4-1/2 | 4-3/4 | |
| All lands | .030 | .033 | .036 | |
| Skirt | .00275 | .003 | .00325 | |

Cam "E"--Must be used on Nelson Autothermic pistons. Same shape as cam "B" but with .013 in. drop at pin which is necessary because of the solid skirt.

# Eaton Front and Rear Axle

The axle division of Eaton Mfg. Co. has submitted valuable information on wear limits for its line. The data covering both front and rear axles will be found in the table below.

Dimensions given are a fair average of the entire line

| PARTS | SPECIFIED FIT OT CLEARANCE | SERVICEABLE AFTER WEAR |
|---|---|---|
| Gear mesh, bevels--backlash | .008 to .015 | .018 |
| Herringbone mesh--backlash | .010 | .015 |
| Gear mesh--differential backlash | .010 max. | .015 |
| Bearing fit--cones where free--Pinion End | .001 loose to .0005 tight | Loose - .002 |
| Bearing fit--cones where free-Housing Tube | .0002 to .0017 loose | Loose - .002 |
| Bearing fit--cones where free--Front Axle inner wheel brg. | .0005 to .0015 loose | Loose - .002 |
| Bearing fit--cones where free--Front Axle outer wheel brg. | .0005 to .002 loose | Loose - .003 |
| Bearing fit--cups where free--Diff. Brgs. L.H. and R.H. Side | .005 tight to .0015 loose | .002 |
| Differential side pinion and spider | .002 to .004 loose | .006 |
| Side gear in differential case | .004 to .007 loose | .009 |
| Internal gear idler pinion and pins | .0045 to .0065 loose | .009 |
| King pin fit in I-beam | .000 to .0015 loose | .002 |
| King pin fit in Knuckle bushings | .0005 to .002 loose | Loose - .003 |
| Differential washers back of gear | .002 loose to .006 loose | Loose - .010 |

### CYLINDER WEAR

Where the cylinder taper does not exceed .005 in., the so-called rering job will generally give satisfactory results with conventional compression and oil rings, such as our Factory Type set or Rebore-Rebuild set.

Where the cylinder taper is in excess of .005 in. --and if it does not exceed .010 in.--and it is impractical to recondition the engine, a rering job will generally give satisfactory results with spring type rings, such as our Leak-Proof set.

Where the cylinder taper is more than .010 in. or the out-of-roundness is more than .003 in., it is advisable to recondition the engine and install new pistons.

### PISTON PIN FIT

Pin fits naturally depend upon the condition of the pin hole. The more accurately a pin hole is finished the looser the pin will feel with the same clearance. The fits specified below cover an average condition.

Piston pin to con-rod clearance: this should be a drop fit in full floating or set screw type pins.

### PIN TO PISTON CLEARANCE

| | Oscillating | Full Floating | Set Screw |
|---|---|---|---|
| Cast Iron--Bushed | Thumb fit | ..... | ..... |
| Cast Iron--Not Bushed ..... | Free Drop | Light Drive fit | Light Drive fit |
| High silicon .... | Thumb fit | Thumb fit | Light Drive fit |
| Other aluminum .. | Palm fit | Light Drive fit | Light Drive fit |

## RAMSEY ACCESSORIES MFG. CORP.

### PISTON RING CLEARANCE

End Clearance: The general rule is to allow .004 in. per inch cylinder diameter for rings in the top groove. Allow .003 in. per inch diameter for rings in the lower grooves. Rings must always be fitted to the smallest part of the cylinder, usually just below the ring travel. In newly reconditioned cylinders, the rings may be fitted at any convenient point.

### CYLINDER WEAR: TAPER WEAR LIMIT

Cylinder out-of-round: Ramco rings are recommended to take care of taper up to .015 in. and eccentricity up to .003 in. However, many users use them successfully in cylinders in worse condition.

### PISTON RING SIDE CLEARANCES

Clearance recommended for the piston rings in the groove is 0.001 to 0.0015 in. This can be measured with a feeler gage.

### PISTON PIN FITTING

Because most of the combustion heat of the piston is transferred to the wrist pin through the wrist pin bosses, it is essential that the car manufacturer or piston manufacturer wrist pin fitting specifications be adhered to.

## THE PERFECT CIRCLE CO.

### RING GROOVE WEAR

If it is possible to insert a feeler gage more than .006 in. thick between the outer edge of the top ring land and 1/16 in. in from the face of the land, the piston should be replaced. The top groove may be reclaimed by the use of a Manulathe and then installing a new ring plus a steel spacer.

### RING GAP CLEARANCES

Whenever obtainable, specific recommendations from the engine manufacturer should be used. In general, the following specifications are satisfactory: To and including 3 1/2-in. bore--minimum gap, .007 in. 3 9/16 to 4 3/8-in. bore--minimum gap, .010 in. 4 7/16 to 5 1/4-in. bore--minimum gap, .013 in.

Ring gaps less than the above specifications may cause the rings to scuff or break.

### RING TO LAND FIT

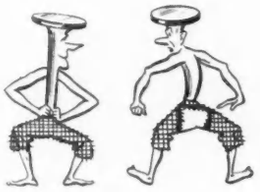
With the new compression ring installed in its groove and the face of the ring flush with the face of the ring land, it should be possible to insert a .0015-in. feeler gage beside the ring completely to the bottom of the groove. Oil rings should be free in the groove.

### PISTON TO CYLINDER FIT

Nuralizing a piston will take care of excessive piston clearance when a complete overhaul is impossible.

# Valve Springs

Valve springs should be replaced if they fall 10 per cent below original specified rating or show any signs of corrosion.



# Valve & Seat Wear

## THOMPSON PRODUCTS, INC.

Valve seat runout, .003 max.
Valve seat width, + 1/32-1/64 from factory spec.
Valve seat angle, blue or lapp for matched faces.
Valve stem warpage, .003 max.
Valve stem length, ± 1/32 on tip below lock.
Valve tappet to bore clearance, +.002 from factory spec.
Valve stem to guide clearance, intake, +50 per cent from factory spec.
Valve stem to guide clearance, exhaust, +50 per cent from factory spec.
Valve guide taper, +.002 from factory spec.

## TOLEDO STEEL PRODUCTS CO.

### VALVE SEAT RUNOUT

Both the seat in the block or head, as well as the face of the valve itself should be checked by means of a dial indicator for runout. The valve seat should be concentric with the guide to within .0015 to .0025 total indicator reading. The valve face should be concentric with the stem to within .0025 to .003. Bent pilots and worn guides will give false readings. Replace guides not up to standard.

### VALVE SEAT WIDTH

Valve seat widths will vary according to design and dimensions of the valve head, type of engine and conditions of operation. The general rule is a wide seat for a hot running engine and a narrow seat for a cool running engine for long valve life.

The valve seat width further is governed by the thickness of the valve head margin which is approximately 3/64 in. wide on most valves and after refacing should be at least 75 per cent of what it was originally. The thinner the margin, the wider the face.

### VALVE SEAT ANGLE

Valve seat angle should be within 1/2 deg. of that specified by the engine manufacturer. This should not be confused with the interference angle between the valve face and valve seat specified by some engine manufactures, i.e., valve face 46 1/2 deg., valve seat 45 deg., interference of 1 1/2 deg.

### VALVE STEM WEAR

Valve stem wear should not exceed .001 in. under the original diameter. That portion of the valve stem below the valve lock groove is not a wearing surface and consequently can be used to measure the original diameter of the stem.

### VALVE STEM TO GUIDE CLEARANCE

An old rule to follow is .00035 in. per .100 in. valve stem diameter, i.e., a valve stem having a .341 in. diameter should be fitted with approximately .0012 in. clearance. This would be the low limit and should not exceed .0022 in. Exhaust valve guide clearance should be approximately .0005 in. greater than intake.

### VALVE GUIDE TAPER

Valve guide taper should not exceed .001 due to taper or uniform wear. Where design specifies a taper for the I.D. of the guide, would suggest that the above limit on wear be considered as the limiting factor.

All valve springs should be checked on a spring tension tester. The compression should be within 10 per cent of the factory limit. If otherwise, replace.

# Service Brakes

## U. S. ASBESTOS DIV.

## RAYBESTOS-MANHATTAN, INC.

The following working limits for better brake operation and care of Lockheed, Huck, Bendix and two-shoe cam-operated brakes, are recommended.

### BRAKE DRUMS

Do not cut drum wall more than 1/32 in. on cars and light trucks; more than 1/16 in. on heavy trucks and busses. Drums should be discarded if deflection in diameter is more than .060 in. under full brake application.

Diameter should be concentric with hub within .010 in.

Surface: Refinish if worn or scored more than .010 in. or if heat checked.

Taper: Refinish if tapered or bell-mouth more than .010 in.

### BRAKE SHOES

Cam Ends: Bendix shoes should be repaired (or discarded if this is not possible), if the cam end is worn or bent and if the anchor pin eye is worn at the small radius.

Rollers: Discard rollers that are worn, particularly if a flat spot is present on outside. Discard roller plates if grooved by the cam more than .015 in.

### BUSHINGS

Anchor bushings should be replaced if worn more than .008 in. Anchors should be fitted and bushings accurately reamed.

### ANCHORS

Pins: Anchor pin on the Huck brake is non-adjustable type, renew anchor if worn more than .008 in.

On the two-shoe cam operated brake and the Lockheed brake, renew anchor pins or rebush shoes if worn more than .008 in.

### LINKS

Articulating links must be rigid and hold the shoes without side play. Examine springs and buttons and renew springs if weak. Applies to all Huck brakes.

### SHOE TIPS & ROLLERS

On the two-shoe cam operated brake, shoe tips or rollers should be replaced if worn.

### SPRINGS

All springs should be renewed if weak.

### CAM

On the two-shoe cam operated brake, camshaft should be renewed and bracket rebushed if worn more than .025 in.

### HYDRAULIC SYSTEMS

Wheel Cylinders: Dismantle and examine at each reline or if leaks are present. Renew pistons if scored, sticking, or worn more than .005 in. Replace cylinders if scored or if "no-go gage" will enter. Renew all rubber cups.

### MASTER CYLINDERS

Check Valve: Pre-loading of lines should be 7 1/2 to 12 lb. per sq. in. line pressure. Renew check valve if either of the seats are worn or misshapen or if small spring is weak or rusty.

Primary & Secondary Cups: Renew cups if distorted or if edges are rounded.

Main Spring: Renew spring if weak.

Piston: Renew if scored or worn more than .005 in. Make certain by-pass holes are open. Cylinder walls should be honed if scored. Use a "no-go gage" for measurement of cylinder diameter. If, after honing enough to remove all scores, the "no-go gage" will enter, master cylinder should be replaced.

# CCJ'S COMPREHENSIVE

# Trouble Shooting Guide

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**A detailed list of common troubles, approached from the standpoint of noise, premature wear, appearance, operation and efficiency--presented to speed the diagnosis of vehicle failures and to improve the efficiency of the mechanic**


*by M. K. SIMKINS,*
Technical Editor, Commercial Car Journal


## Engine Starting

### 1. STARTER WILL NOT FUNCTION

a. Lights stay bright
- Open circuit at starter
- Improperly seating brushes
- Defective starter switch
- Broken starter drive
- Stuck solenoid

b. Lights dim slightly
- Resistance at starter switch
- Dirty commutator
- Jammed starter drive

c. Lights go out
- Discharged battery
- Loose battery cables
- Tight engine
- Corroded battery terminals
- Defective cell in battery

### 2. STARTER TURNS, ENGINE WON'T START

a. Ammeter dead--open primary
- Points set too wide
- Defective distributor drive
- Corroded distributor points
- Loose wire at distributor
- Defective ignition switch
- Defective ammeter
- Open winding in coil

b. Ammeter shows discharge -- grounded primary
- Points set too close
- Worn distributor cam lobes
- Worn rubbing block on points
- Shorted condenser
- Shorted primary winding at coil
- Defective insulation, primary wires
- Grounded contact point arm

c. Ammeter movement normal -- spark not reaching plugs
- Grounded wire, coil to distributor
- Loose coil high tension wire
- Corroded wells in distributor cap
- Defective coil or condenser
- Defective rotor brush or contact
- Defective distributor cap
- Wet high tension wires

### 3 GOOD SPARK, LACK OF FUEL

a. No fuel at carburetor
- Empty gas tank
- Clogged fuel lines
- Clogged fuel filter
- Restricted vent in gas tank
- Defective fuel pump
- Air leak in line from tank
- Clogged carburetor screen

b. Fuel at carburetor
- Carburetor flooded
- Choke not operating
- Water in gasoline
- Restricted carburetor jets

c. Fuel not reaching cylinders
- Poor compression
- Leaking intake manifold
- Loose carburetor flange
- Broken manifold heat control valve
- Dirty low speed circuit in carburetor
- Valves out of time

d. Flooding at carburetor
- High float level
- Choke out of adjustment
- Clogged air strainer
- High fuel pump output

### 4. GOOD SPARK, PROPER CARBURETION
- Spark out of time
- Moisture in cylinders
- Inferior grade of fuel
- Defective spark plugs
- Spark plug gap set too wide

## Engine Operation

### 1. ENGINE MISFIRES AT IDLE

a. Ignition troubles
- Plug gaps too wide
- Defective spark plugs
- Defective coil or condenser
- Sticking breaker arm
- Incorrect breaker point gap
- Spark advanced too far
- Loose wire in primary
- Defective ignition switch
- Worn distributor shaft bushings
- Sprung distributor shaft
- Worn cam lobes on shaft
- Defective distributor rotor
- Leaking, wet high tension wires
- Cracked distributor cap
- Corroded, pitted breaker points

b. Carburetion troubles
- Incorrect float level
- Dirt or water in fuel
- Leaking intake manifold
- Burned heat riser tube

c. Valve troubles
- Sticking valves
- Leak at intake valve guides
- Warped or burned valves
- Weak valve springs
- Incorrect valve tappet adjustment
- Cracked valve seat
- Loose valve seat insert
- Sticking valve lifter

### 2. MISFIRES AT HIGH SPEED
- Conditions under No. 1
- Weak breaker arm spring
- Breaker points set too wide
- Wrong type spark plugs
- Excessive carbon
- Weak valve springs
- Defective spark advance
- Poor compression

### 3. ENGINE BACKFIRES

a. Through exhaust
- Cracked spark plug porcelain
- Crossed spark plug wires
- Weak valve springs
- Air leaks in manifold

b. Through carburetor
- Improper ignition timing
- Improperly seating valves
- Incorrect valve timing
- Preignition
- Excessively lean or too rich mixture
- Intake manifold air leaks
- Poor quality fuel
- Sticking distributor governor

### 4. PRE-IGNITION

a. Ignition causes
- Spark set too fast
- Faulty distributor advance
- Incorrect type spark plugs
- Carbonized or burned plug electrodes

b. Carburetion causes
- Poor grade of fuel
- Lean carburetor mixture
- Inoperative heat control valve

c. Overheated valves from --
- Incorrect valve seat width
- Insufficient tappet clearance
- Use of wrong type valve
- Thin edged valves
- Valve springs too strong

d. Miscellaneous causes
- Carbon deposits in combustion chamber
- Sharp metallic edges in combustion chamber
- Cylinder head projecting in combustion chamber
- Excessive engine temperature

# High Gas Consumption

1. CARBURETOR CONDITIONS

a. Flooding or leaking
- High fuel pump pressure
- Leaking line connections
- High float level
- Plugged vent hole in cover
- Loose float needle seat
- Defective needle valve seat gasket
- Defective carburetor bowl gasket
- Worn needle valve and seat
- Foreign matter clogging needle valve
- Ridge worn in lip of float
- Worn float pin or bracket
- Float binding in bracket
- Cracked carburetor casting

b. An Overrich Mixture
- High fuel pump pressure
- High float level
- Leaking float
- Warped or bent bowl cover
- Worn metering rod
- Worn high speed circuit jets
- Choker valve spring stuck
- Choke lever stuck
- Restricted air cleaner
- Too much oil in air cleaner

c. Too Rich Choke
- Improper adjustment of accelerating pump
- Choker shaft binding
- Stuck or binding choke piston
- Leak in choke gasket
- Binding butterfly valve
- Plugged air strainer

2. FUEL PUMP CONDITIONS
- High fuel pump pressure
- Leakage around diaphragm cover
- Leaking fuel pump diaphragm
- Leaking sediment bowl gasket
- Loose valve seats
- Warped check valves
- Dirt, sediment in valves
- Corroded in valve seats

3. FUEL SYSTEM LOSS
- Leakage at lines and connections
- Evaporation from partially filled tank
- Evaporation from overheated lines
- Leakage at filler cap
- Leaking gas tank

4. IGNITION TIMING TROUBLES
- Incorrect spark timing
- Worn breaker points
- Leaking high tension wires
- Weak ignition coil
- Incorrect spark plug gap
- Faulty spark advance
- Fouled spark plugs
- Defective condenser
- Pre-ignition

5. POOR ENGINE COMPRESSION
- Worn or broken piston rings
- Worn pistons and cylinders
- Worn valve stems or guides
- Weak valve springs
- Distorted head or block
- Sticking valves
- Poorly seating valves
- Leaking head gasket

6. OTHER VEHICLE FACTORS
- Loose carburetor flange on manifold
- Improperly adjusted or worn throttle linkage
- Restricted exhaust system
- Carbon in manifold
- Improperly adjusted manifold heat control
- Leaking windshield wiper hose
- Leaking intake manifold gasket
- Leaking manifold intake heat riser
- Oil too high in oil bath air cleaner
- Overheating engine
- Unsatisfactory engine warm-up
- Use of poor grade of gasoline
- Loose intake manifold

7. CHASSIS CONDITIONS
- Dragging brakes
- Misaligned wheels
- Excessive engine friction
- Slipping clutch
- Under-inflated tires

8. DRIVING CONDITIONS
- High speeds
- Rapid acceleration
- Excessive use of low gears
- Excessive idling
- Cold operation, short trips
- Use of too heavy lubricants
- Driving over hilly country

# Engine Noises

1. CRANKSHAFT KNOCKING
- Excessive bearing clearance
- Excessive end play
- Out-of-round bearing journals
- Misaligned crankshaft
- Insufficient oil supply
- Low oil pressure
- Diluted oil--water or gasoline
- Loose flywheel
- Broken crankshaft web
- Distorted crankcase

Excessive bearing clearance
- Insufficient oil supply
- Low oil pressure
- Misaligned con-rod caps
- Misaligned con-rods
- Tapered, out-of-round journals

3. PISTON NOISES
- Excessive piston to cylinder bore clearance
- Eccentric or tapered cylinders
- Insufficient piston pin clearance
- Piston hitting cylinder ridge
- Carbon in top of cylinder
- Piston hitting cylinder head gasket
- Collapsed piston skirt
- Excessive clearance at ring groove
- Pin hole out of round with piston
- Ring lands not properly relieved

4. PISTON PIN NOISES
- Excessive piston pin clearance
- Loose piston pin lock
- Con rod end rubbing piston pin boss
- Insufficient piston pin clearance

5. OIL PUMP AND DISTRIBUTOR SHAFT
- Worn oil pump and distributor driven gear
- Worn or damaged camshaft drive gear
- Improper mesh of drive and driven gears
- Couplings loose on shaft
- Worn shaft bushings
- End play in distributor shaft drive
- Oil pump loose on mountings
- Damaged or scuffed oil pump gears

6. WATER PUMP
- Lack of lubrication (lubricated types)
- Worn shaft bearings
- Pulley loose on shaft
- Pump impeller loose on shaft
- Excessive end play of pump shaft
- Impeller blades rubbing pump housing
- Impeller broken or pin sheared

7. ENGINE FAN
- Belt adjustment too tight or too loose
- Grease or rust on pulleys
- Incorrect type or size fan belt
- Worn or burned fan belt
- Misaligned pulley
- Excessive fan shaft end play
- Fan blades loose on spider of hub
- Fan blades striking radiator
- Unbalanced fan assembly
- Uneven pitch of fan blades
- Bent, distorted fan blades

8. FUEL PUMP
- Weak or worn rocker arm contact spring
- Worn rocker arm or rocker arm spring
- Fuel pump body loose on engine
- Scored lever or cam eccentric
- Interference of lever with crankcase surface

# High Oil Consumption

1. CYLINDERS
- Worn, wavy, distorted cylinders
- Cylinder bores out of alignment
- Block out of alignment with crankshaft
- Rough finish in cylinders
- Scored cylinder walls

2. PISTONS
- Worn pistons
- Out of round pistons
- Improperly fitted pistons
- Misalignment of piston and rod assemblies
- Worn piston pins
- Worn ring grooves
- Piston pin hole out of alignment
- Insufficient drain holes in oil ring grooves
- Lack of drain holes in bevel or chamfer
- Collapsed piston skirt

3. RINGS
- Worn or broken rings
- Wrong size rings
- Rings out of round, warped, twisted
- Poorly designed rings
- Rings fitted too tight in grooves
- Carbon in oil ring slots
- Insufficient ventilation of oil rings
- Insufficient tension in rings
- Insufficient clearance of ring gap

4. VALVES
- Valve timing too late
- Incorrect tappet clearance
- Worn valve seats
- Worn valve stems or guides
- Leaky or burnt valves
- Plugged valve chamber drain

5. BEARINGS
- Scored con-rod bearings
- Out-of-round crankshaft
- Worn main bearings
- Leaking main bearing seals
- Misaligned bearing caps
- Worn camshaft bearings
- Misaligned crankshaft
- Spurt holes in worn rods
- Plugged oil seal drain

6. OIL
- Oil level too high
- Contaminated oil
- Poor grade oil
- Thin, diluted oil
- Oil pressure too high
- Broken oil lines
- Sludge in engine

7. EXTERNAL LEAKS IN--
- Outside oil lines
- Front main bearing
- Rear main bearing
- Oil pan gaskets
- Crankcase ventilator pipe
- Fuel pump gaskets
- Valve cover gaskets
- Timing gear cover gasket
- Crankcase drain plug
- Oil filter gaskets
- Oil filter connections
- Breather pipe

8. MISCELLANEOUS
- Clogged breather, oil filter
- Defective booster pump diaphragm
- Bent, misaligned con-rods
- Worn timing gears or chain
- Improper timing
- Clogged muffler, tail pipe
- Overheated engine
- Faulty carburetion
- Leaky intake manifold gaskets
- Defective spark plugs
- Sustained high speeds
- Improper break-in of newly re-rung engine

SELECTION & OPERATION

# Electrical

1. WITH BATTERY AS GUIDE

a. Frequent charge necessary
- Insufficient charge rate
- Slipping generator drive
- Corroded battery terminals
- Short circuit in charging circuit
- Stuck cut-out in regulator
- Excessive use of electrical units
- Excessive drag in engine
- Worn out, inefficient battery

b. High water loss
- Too high charging rate
- Old, inefficient battery
- Leaking battery cell
- Cracked battery case
- Defective current regulation

c. Will not take full charge
- Spilled electrolyte
- Internal short circuit
- Low water level
- Impure electrolyte (doped up)
- Worn out battery

2. WITH STARTER AS GUIDE

a. Excessive current draw
- Worn armature shaft bearings
- Misaligned armature shaft
- Loose field pole pieces
- Broken, jammed starter drive
- Misaligned starting motor
- Dirty, gummed armature
- Shorted armature
- Grounded armature or field
- Resistance in engine parts
- Use of too heavy oil in winter
- Dragging clutch

b. Failure to operate
- Poor battery ground
- Broken teeth on flywheel
- Defective starter switch
- Shorted armature
- Shorted field or brushes
- Direct ground in switch
- Burned contact points in switch
- Improper seating brushes
- High mica between commutator segments

c. Excessive noise at starter
- Worn armature shaft bearings
- Misaligned starting motor
- Loose starter mounting
- Sprung armature shaft
- Insufficient lubrication
- Chipped flywheel teeth
- Defective starter drive

d. Burned commutator bars
- Open circuited armature coils
- Improperly seating brushes
- Excessive battery voltage
- Open field circuit
- Excessive arcing at brushes
- Long, sustained useage

3. WITH LIGHTS AS GUIDE

a. Excessive voltage drop
- Corroded, rusty grounds
- Insufficient capacity wiring
- Frayed, broken cable strands
- Cracked, leaking wire insulation
- Loose connections

b. Lamps fail to light
- Blown fuse
- Burned out bulbs
- Loose connections
- Run down battery
- Open circuit in wiring
- Defective light switch

*TURN TO PAGE 84, PLEASE*

CCJ'S COMPREHENSIVE

# Trouble Shooting Guide

CONTINUED FROM PAGE 83

c. Lights flicker
Loose connections
Poor grounds at lamps

d. Bulbs burn out
Incorrect type of bulbs
Poor grade of bulbs
Corroded, defective grounds
Excessive battery voltage
Excessive charging rate
Short in wiring

### 4. GENERATOR TROUBLES

a. Fails to charge
Open charging circuit
Grounded wire in charging circuit
Cut-out points stuck open
Open coil in cut-out windings
Sticking brushes
Dirty, gummy commutator
Burned out commutator
Grounded field coil
Short circuit in field

b. Low, unsteady charging rate
Conditions listed in A
Slipping fan belt
Defective ammeter
Loose generator pulley
Grounded generator field
Open armature winding
Loose pole pieces in field circuit
High mica between commutator bars
Improperly seating brushes
Worn brushes, weak spring tension
Incorrect type of brushes
Out of round commutator
Resistance in charging circuit

c. Excessive charging rate
Grounded field--external ground type
Shorted field--internal grounded type
Improper third brush setting
Overheated battery
Defective regulator

d. Noisy generator operation
Worn or damaged bearings
Insufficient bearing lubrication
Loose generator drive pulley
Misaligned fan belt or pulley
Loose field pole pieces
Improperly seating brushes
High armature slot wedges
Excessive output

e. Arching, noise at brushes
High mica between commutator bars
High commutator bars
Out of round commutator
Sprung armature shaft
Dirty, glazed commutator
Hard spots in brushes
Weak brush spring tension
Brushes worn down or loose
Loose wiring at pigtails
Shunts loose in brushes
Excessive output

f. Premature armature failure
Excessive charging rate
Failure of voltage regulator
Improper type brushes
Worn shaft bearings

### 5. REGULATOR FAILURES

a. Excessive oxidation of points
Poor ground connections
Misaligned contact points
Improper air-gap setting
Shorted field in generator
Wrong type of replacement points
Open shunt resistors
Reversed polarity

b. Excessive point pitting
Long usage, normal wear
High current output of generator
Insufficient point spring tension
Reverse polarity in generator--Pitting cut-out points
Suppression condenser on "F" terminal
Items under 2 A

c. Burned Coil windings
Excessive current output
Short in charging circuit
Regulator set too high
Resistance in ground circuit
Stuck cut-out points

d. Sticking contact points
Open resistance unit
Defective winding in regulator
Pitted or oxidized points
Misaligned points
Shorted field coil in generator
Poor ground connection between generator and regulator

### 6. INACCURATE ADJUSTMENTS--CAUSED FROM--

a. Instruments
Use of inferior instruments
Careless calibration of instruments
Use of damaged instruments without checking accuracy

b. Procedure
Careless checking methods--failure to read meters closely
Failure to consider temperature
Failure to normalize engine prior to tests
Checking regulator with cover off
Failure to clean units before adjusting

c. Failure to use manufacturers' specifications
Failure to duplicate road conditions on bench
Use of wrong type or inferior parts
Failure to replace worn parts

### 7. IGNITION SYSTEM

a. Breaker point oxidation
Incorrect type ignition coil
High battery voltage
Cold battery and coil windings
High resistance in condenser circuit
Oil and crankcase vapors
Filings lodged on points

b. Ignition coil failure
Excessive heat from engine
Moisture formation
Extremely high voltages

c. Condenser failures
Excessive heat
Moisture
Normal fatigue

d. Spark plug failures, burning and fouling
Incorrect type plug
Too rich fuel mixture
Engine pumping oil
Inferior grade of gasoline
Overheated engine

## Compression Losses

### 1. INDICATION OF FAILURE

a. From engine performance
Loss of power
Poor acceleration
Oil pumping --blow-by
Smoking exhaust
High oil consumption
Diluted engine oil

b. From engine sounds
Clicking --broken ring or land
Knocking --piston slap or broken piston
Hissing at breather--intake valve
Hissing at exhaust--exhaust valve
Regular hiss--blown gasket
Backfiring through carburetion--valve
Backfiring on acceleration--valve
Irregular engine miss
High speed missing
Missing on acceleration

c. With compression gage
Low compression reading
Low reading -- two cylinders
Leak past valves -- compressed air test

d. With vacuum gage
Low vacuum gage reading
Fluttering of needle
Irregular drop in vacuum

### 2. PISTON RING CONDITIONS

a. Broken rings
Wrong type, size ring
Undersize pistons
Ring striking top ridge
Worn ring grooves
Broken ring lands
Insufficient ring tension
Insufficient gap clearance
Excessive side clearance in ring groove
Scored, wavy cylinder walls
Overheating

b. Ring sticking
Dirty, contaminated oil
Incorrect type of oil
Poor grade of oil or fuel
Compression blow-by
Incomplete combustion
Engine detonation
Inadequate crankcase ventilation
Improper engine cooling
Lugging engine
Excessive engine idle
Insufficient ring land side clearance

c. Ring noises
Broken piston ring
Worn ring grooves
Lack of inner ring tension
Top ring striking cylinder ridge
Wavy cylinder walls
Broken ring lands
Undersize pistons

### 3. PISTON FAILURES

a. Piston noises
Excessive piston to bore clearance
Eccentric or tapered cylinders
Carbon accumulations in head
Collapsed piston skirt
Broken piston, skirt, ring land
Insufficient clearance at top ring land

b. Piston breakage
Undersize pistons
Eccentric or tapered cylinders
Warped cylinder barrels
Inadequate lubrication
Misaligned connecting rods
Overspeeding and overloading
Engine overheating
Pre-ignition

### 4. CYLINDER FAILURES

a. Excessive wear, scoring
Too harsh type rings
Inadequate lubrication
Contaminated or poor oil
Improper cylinder finish
Sharp edge left on piston skirt
Insufficient ring gap clearance
Incomplete combustion
Tight piston pins
Misaligned connecting rods, pins
Distorted block, crankshaft
Cylinders bored out of line

b. Warpage
Engine overheating
Steam pockets in block
Improper head tightening
Improper sleeve installation
Deposits between dry sleeve and bore

### 5. VALVE SEATING TROUBLES

Burned valves and seats
Deposits under head and stem
Warped heads and stems
Cracked valves and seats
Insufficient valve-tappet clearance
Broken, weak valve springs
Warped or binding guides
Improper grinding operations
Improper valve timing
Worn timing gears or chain

## Valve Failures

### 1. BROKEN VALVES

Weak valve springs
Too much spring pressure
Worn valve guides
Worn retainers
Worn retainer grooves
Excessive tappet clearance
Cocked springs or retainers
Excessive temperatures
Out of round seats
Defective valve forgings
Excessive engine speeds
Block distortion

### 2. BURNED VALVES

Close tappet clearance
Weak valve springs
Eccentric valve face
Gum formations on stem
Deposits on valve seats
Excessive detonation
Exhaust back pressure
Improper valve-guide clearance
Lean air-fuel mixture
Warped valves or guides
Water and sludge deposits
Defective valve material
Improper block cooling
Improper spark plug heat range
Pre-ignition
Improper spark timing
Incorrect valve seat width
Inferior fuel

3. VALVE DEPOSITS

Inferior fuel
Inferior oil
Poor lubrication of stem
Improper cooling
Worn valve stem
Bell-mouthed valve guides
Too much engine idling
Rich carburetor setting
Worn rings, cylinders, pistons
Excessive oil pressure
Dirty oil filters
Dirty air filters
Sludged engine
Poor preventive maintenance

4. BROKEN VALVE SPRINGS

Valve flutter at high speed
Corrosion of valve springs
Improper crankcase ventilation
Worn camshaft bearings
Worn timing gears or chains
Worn lobes on camshaft
Worn crankshaft or bearings
Normal fatigue

5. NOISY VALVES

Excessive tappet clearance
Inadequate lubrication of rocker arms
Wear in rocker arm assembly
Wear in push rods
Wear in tappets, adjusting screw
Wear in cam lobes
Wear in valve guides

6. IMPROPER ADJUSTMENTS

Worn rocker arms
Loose rocker arm assemblies
Wear in push rod ends
Wear in adjusting tappet screw
Wear in tappet body
Wear in spring retainer slot
Wear in spring retainer cup
Wear in valve stem tip

## Bearing Failures

1. CAUSES OF FAILURE

a. Dirt from
Careless service methods
Contaminated oil
Infrequent oil changes
Dirty oil filters
Dusty operation

b. Improper fitting through -
Distorted con-rods
Out-of-round journals
Tapered journals
Scored bearing surface
Warped crankshaft or block
Improper clearance
Use of inaccurate tools
Improper tensions of studs
Mixing con-rod caps
Installing shells backwards
Filing shell to fit
Chiseling shell to reduce clearance
Excessive crankshaft end play
Dirt between brg. and rod bore
Mutilated bearing surface

c. Corrosion from--
Crankcase acid vapors
Overcooling
Overheating
Inferior type of oil
Incomplete combustion
Poor crankcase ventilation
Engine blow-by
Infrequent oil changes

d. Improper vehicle operation
Overspeeding
Overloading the vehicle
Lugging on hills
Spark detonation
Improper engine break-in
Racing a cold engine
Use of wrong type, grade oil
Improper fuel
Insufficient oil
Improper timing

e. Lubrication failure
Failure of oil pump
Clogged oil pump screen
Excessive engine sludge
Excessive engine temperature
Use of too heavy oil in winter
Insufficient engine warm up
Insufficient quantity of oil
Crankcase dilution
Inadequate crankcase ventilation

2. RESULT OF FAILURE

a. Color
Black deposits on O.D., loose in rod bore
Pitted-corrosion-high temperature
Coppery color-corrosion-low temperature
Steel discolored (blue) overheating
Bright spots on I.D.-localized overheating
Metal to metal contact on I.D. (bright surface). Breaking through oil film

b. Condition
Broken babbitt-dirt behind shell
Scurvey appearance-foreign particles
Pitted marks-dirty oil or assembly
Melted babbitt-overheating
Metal wiped out-too close fit-Lack of lubrication
Scored, ridged-contaminated oil
Cracks, broken areas-normal fatigue
Uneven wear-misalignment
Excessive crush-out-of-round bore
Rough surface-excessive clearance
Worn upper half both halves of main--overspeeding
Worn lower half cap half rod bearing--overspeeding
Worn upper half of main--lugging overspeeding
Worn lower half of main--lugging
Worn upper half of con-rod--lugging

## Cooling System

1. EXTERNAL LEAKAGE

Loose, defective hose clamps
Defective rubber hose
Broken radiator seams
Worn water pump shaft, seal, bearing
Corrosion perforation of water tubes
Loose core hole plugs
Damaged gaskets, pump, cylinder
Warped cylinder head or block
Cracked cylinder head or block
Corrosion perforation of freeze plugs
Damaged cooling element

2. INTERNAL LEAKAGE

Warped cylinder head or block
Damaged cylinder head gasket
Deteriorated wet cylinder sleeve seals
Cracked cylinder wall
Loose cylinder head bolts
Porosity of cylinder head(aluminum)
Broken joints in oil coolers

3. OVERFLOW LOSS

Steam formation at hot spots
Air entrainment from top tank turbulance
Air leak on suction side of pump
Foaming of cooling liquid
Defective radiator baffle plate
Exhaust gas leakage into system
Leakage of overflow tank
Defective radiator cap
Defective pressure valve in cap
Restricted passages in radiator

4. POOR CIRCULATION

Clogged radiator core
Clogged water jacket passages
Stuck thermostat
Collapsed radiator hose
Pump impeller loose on shaft
Pump blades broken or worn
Slipping fan belt
Distribution tube dislocated
Inadequate cooling system capacity
Low or too high coolant level
Air leak in suction side of system

5. OVERHEATING

Causes listed in No. 4
Oil and sludge in system
Bent fan blades
Radiator air baffles out of place
Clogged bug screen
Coated radiator core fins
Obstruction in front of radiator
Low coolant level
Incorrect ignition timing
Incorrect valve timing
Pre-ignition
Defective spark advance mechanism
Improper fuel mixture
Low oil level
Tight engine, bearings, pistons, rods
Defective heat control valve
Clogged exhaust or muffler

6. OPERATING FACTORS

Dragging brakes
High sustained speeds
Overloading of vehicle
Driving in sand, snow, mud
Lugging engine on grades
Stop and go driving
Excessive engine idling

7. OVERCOOLING

Defective thermostat
Low speed driving
Inaccurate temperature indicator
Thermostat installed incorrectly
Automatic shutters not functioning
Defective heat control valve

8. CORROSION

Electrolytic action
Air leaks in system
High temperature
Impurities in water
Lack of rust inhibitor
Improper draining and service

## Hydraulic Brakes

1. FROM DRIVER'S SEAT

a. Spongy Pedal
Air in fluid
Improper brake fluid
Improper brake adjustment

b. RUBBERY PEDAL
Improper lining-drum contact
Lining of incorrect thickness
Improper brake adjustment

c. NO PEDAL RESERVE
Normal wear of linings
Low hydraulic brake fluid
Defective master cylinder

d. LOSS OF PRESSURE
Leak in cup of master cylinder
Leak in wheel cylinder, internal
External leak in lines
Leak in master cylinder check valve
Leak at stop light switch

e. HARD PEDAL, NO FREE TRAVEL
Improper lining
Restriction in bypass port of master cylinder
Swollen rubber cylinder cups

f. PUMPING OF PEDAL NECESSARY
Worn linings
Improper brake adjustment
Worn wheel cylinders or cups

g. BINDING PEDAL
Broken piston stop wire in master cylinder
Worn, tight, rusted linkage
Loose Master cylinder mountings

h. PEDAL STRIKES TOEBOARD
Pedal stop ring out of seat in master cylinder

i. PEDAL FAILS TO RETURN
Weak pedal return spring
Restricted bypass in master cylinder
Loose mountings of booster, pedal, master cylinder

SELECTION & OPERATION

j. NO BOOSTER HELP
Leak in vacuum lines
Leak in diaphragm of booster unit
Loose connections
Worn valves in booster unit
Linkage out of adjustment

2. ON ROAD TEST

a. POOR BRAKES, NO PEDAL RESERVE
Oil-soaked linings
Improper linings
Glazed linings
Wrong linings
Improper shoe adjustment
Improper pedal adjustment
Improper-drum-lining contact

b. GRABBING BRAKES
Grease-soaked linings
Charred linings
Scored drums
Scored drums
Improper lining
Loose dust shields
Improper shoe adjustment

c. SIDE PULL
Grease-soaked lining
Improper shoe adjustment
Loose anchor pins
Clogged or crimped wheel line
Excessive wear in drum
Loose dust shield
Different makes of lining
Front spring U-bolts loose
Tires not properly inflated
Improper shoe assembly
Linings charred
Scored drums
Water, mud in brakes
Weak chassis springs

d. SQUEALING BRAKES
Incorrect lining
Distorted brake drum
Loose lining rivets
Bent backing plate
Sprung shoes
Foreign material embedded in lining
Dirt in brake drum
Shoes scraping on backing plates

e. OVERHEATING BRAKES
Dragging brakes
High spots on drum
Improper adjustment
Tight wheel bearings
Dirt and grime on drums

f. FADING BRAKES
Improper lining
Poor lining contact

3. FROM THE LIFT

a. ONE WHEEL DRAGS
Improper brake adjustment
Distorted cylinder cups
Brake shoe seized to anchor pin
Weak brake shoe return spring
Shoes improperly installed
Sprung shoes
Loose wheel bearing
Obstruction in line

b. WHEEL LOCKS
High spots on lining
Out-of-round drum
Loose wheel bearing
Loose dust shield
Loose lining
Loose anchor bolts

c. ALL WHEELS DRAG
Improper adjustment
Improper assembly of shoes
Swollen cylinder cups
Restricted port in master cylinder
No free pedal travel
No toe-board clearance
Lining of incorrect thickness
Weak pedal return spring

*TURN TO PAGE 86, PLEASE*

CCJ'S COMPREHENSIVE

# Trouble Shooting Guide

CONTINUED FROM PAGE 85

## Air Brakes

### 1. AIR PRESSURE SYSTEM

a. Slow pressure build-up
- Worn piston rings in compressor
- Scored cylinder walls
- Leaking discharge valves or seats
- Leaking lines or connections
- Clogged compressor air strainer
- Carbon in discharge line
- Leaking application valve
- Insufficient unloader valve clearance
- Excessive carbon in head
- Slipping compressor drive
- Too slow engine idle speed

b. Quick loss of pressure
- Worn, leaking discharge valves
- Leaking lines or connections
- Leaking brake valves
- Leaking governor valves
- Sticking discharge valves

c. Compressor not unloading
- Restriction in unloading lin.
- Excessive clearance, unloader valves
- Carbon in unloader cavity
- Stuck unloading mechanism
- Defective governor
- Governor out of adjustment

d. Noisy compressor
- Loose drive pulley
- Worn, burned out bearings
- Worn connecting rods
- Loose piston pins
- Broken piston rings
- Broken discharge valves
- Carbon under discharge valves
- Weak, broken valve springs
- Carbon deposits in head
- Restricted oil line to bearings

e. Oil and water in system
- Poor daily PM
- Worn rings in compressor
- Scored cylinder walls
- Clogged air strainer
- Excessive oil pressure
- Excessive temperature changes

### 2. FOUNDATION SYSTEM

a. Insufficient braking
- Cams out of adjustment
- Push rods out of adjustment
- Glazed, worn out liners
- Drums turned too thin
- Grease-soaked linings
- Lining of improper diameter
- Leaking brake chamber diaphragm
- Binding brake pedal
- Brake valve out of adjustment
- Inadequate air pressure
- Improper brake shoe adjustment

b. Slow brake application
- Improper brake shoe adjustment
- Low air pressure
- Restricted lines and tubing
- Moisture frozen in system
- Excessive push rod travel
- Frozen cams
- Leaking brake valve diaphragm

c. Slow release of brakes
- Improper brake adjustment
- Frozen cams
- Rusted cam lobes
- Weak retractor springs
- Frozen anchor pins
- Dry cam faces

### 3. ROAD TEST CONDITIONS

a. Grabbing brakes
- Loose, broken spider brake
- Broken support plate
- Loose brake liners
- Flat spots on cam
- Grease-soaked linings
- Out-of-round drums
- Binding brake rigging
- Defective brake valve
- Loose backing plate
- Drums turned too thin

b. Side pull
- Improper brake adjustment
- Defective lining
- Improperly adjusted push rod travel
- Oil soaked lining--one wheel
- Broken shoe retractor spring
- Leaking diaphragm in brake chamber
- Unequal spring tension in diaphragm
- Out-of-round drum

c. Noisy brake application
- Weak, broken retractor springs
- Loose liners or rivets
- Thin brake drums
- Foreign particles imbedded in drums
- Glazed, thin linings
- Poor lining contact with drum
- Broken, misaligned shoes
- Loose backing plates
- Tool marks in drum
- Unbalanced brake linings

### 4. BRAKE LINING FAILURES

a. Fleet habits
- Careless relining practices
- Negligent preventive maintenance
- Too heavy schedules
- Too heavy loads
- Improperly operated brakes
- Use of inferior brake linings
- Negligence in part replacement
- Improper load distribution
- Improper adjustments

b. Fleet modifications
- Use of improper brake linings
- Redesigning fifth wheel location
- Redesigning of wheelbase
- Changing drum materials
- Increasing tire sizes

c. Driving habits
- Fanning of brakes
- Failure to shift down on hills
- Too fast speeds
- Riding brake pedal

### 5. BRAKE DRUM FAILURES

- Linings of improper coefficients
- Improper cleaning and maintenance
- Improper drum grinding techniques
- Unbalanced brakes
- Conditions under No. 4

## Transmission

### 1. NOISE IN NEUTRAL

- Misalignment of transmission
- Worn transmission pinion bearing
- Scuffed gear tooth contact surgears
- Worn, scored countershaft bearings
- Defective second speed mainshaft gear bushing
- Unmatched constant mesh gears
- Worn, rough reverse idler gear
- Eccentric countershaft gear assembly
- Sprung or worn countershaft
- Excessive backlash in constant mesh gear
- Excessive end play in countershaft, reverse idler, pinion
- Worn mainshaft pilot bearing
- Scuffed gear tooth contact surface
- Insufficient lubrication
- Incorrect grade of lubricant

### 2. NOISE IN GEAR

- Worn, rough mainshaft rear bearing
- Sliding gear teeth rough, chipped, tapered
- Excessive second speed mainshaft end play
- Noisy speedometer gears
- Conditions under No. 1

### 3. OTHER NOISE CAUSES

- Out-of-balance fan
- Defective torsional damper
- Out-of-balance crankshaft
- Out-of-balance flywheel
- Unbalanced clutch assembly
- Loose transmission mounting
- Loose engine mountings
- Worn universal joints
- U-joints improperly installed
- Misaligned, sprung driveshaft
- Incorrect driveshaft assembly

### 4. DIFFICULT SHIFTING

- Improperly operating clutch
- Sliding gear tight on shaft splines
- Insufficient chamfer of sliding gear teeth
- Burred mainshaft splines
- Misaligned mainshaft
- Damaged synchronizing unit
- Improper adjustment of shifting linkage
- Worn shifter rails
- Worn, sprung shifter fork

### 5. STICKING IN GEAR

- Improperly operating clutch
- Insufficient chamfer on detent ball notches
- Sliding gear tight on mainshaft splines
- Misaligned mainshaft
- Improper linkage adjustment

### 6. SLIPPING OUT OF HIGH

- Misaligned transmission
- Worn pinion gear teeth
- Worn clutch sleeve gear teeth
- Insufficient tension on detent balls
- Too much chamfer on detent ball notches
- Improper linkage adjustment

### 7. SLIPPING OUT OF SECOND

- Excessive clearance between second speed gear and mainshaft
- Excessive end play of second gear on mainshaft
- Worn second speed clutch gear teeth
- Excessive chamfer on detent ball notch
- Weak detent ball springs
- Improper linkage adjustment

### 9. SLIPPING OUT OF FIRST

- First and reverse sliding gear loose on mainshaft splines
- Sliding gear teeth worn or tapered
- Worn, misaligned mainshaft splines
- Worn countershaft first speed gear
- Excessive end play of reverse idler
- Insufficient gear mesh
- Too much chamfer on detent ball notch
- Worn shift lever lock ball notch
- Improper linkage adjustment

### 9. LOSS OF LUBRICANT

- Lubricant level too high
- Damaged or improperly installed gaskets
- Damaged or defective oil seals
- Defective oil throw rings
- Loose drain plug, transmission cover
- Cracked transmission housing
- Use of excessively foaming lubricant
- Stopped up transmission breather
- Worn mainshaft bearings

### 10. BEARING FAILURES

- Use of wrong type, grade of lubricant
- Securing too tight or too loose bearing adjustments
- Improper assembly of the unit
- Lack of cleanliness in unit overhaul
- Improper shifting of gears
- Excessive overloading of vehicle
- Lugging of engine in too high a gear
- Foreign particles in transmission

## Power Train

### 1. PROPELLER SHAFT

a. Excessive Vibration
- Improper alignment of flanges
- Missing bolt in flange
- Misaligned, sprung drive shaft
- Worn torque tube bushing
- Worn needle bearings in cross
- Worn splines on shaft or yoke
- Too short propeller shaft
- Loose U-joint flange nut
- Improperly installed key on pinion
- Misaligned rear wheels
- Shifted rear axle
- Sprung frame
- Worn rear transmission bearing

b. Excessive Wear
- Careless braking
- Excessive end thrust
- Overloading the vehicle
- Too short shaft
- Improper lubrication

### 2. UNIVERSAL JOINTS

a. Out of Balance
- Excessive wear
- Loose flange nut
- Worn keyways
- Incorrect key installation
- Grease fitting interference

b. Breakage
- Erratic driving and braking
- High angle drive
- Overloading
- Weak rear springs
- Misaligned drive shaft
- Misaligned rear axle

### 3. DIFFERENTIAL

a. Case Breakage
- Improper adjustment differential support bearings
- Loose case bolts
- Excessive ring gear and thrust block clearance
- Vehicle overloading
- Erratic clutch operation

b. Scoring of Pinions
- Insufficient lubrication
- Improper grade of lubricant
- Excessive spinning of one wheel
- Excessive loads

c. Tooth Breakage
- Overloading
- Erratic clutch operation
- Ice-spotted pavements
- Normal fatigue

d. Side Gear Broken at Hub
- Excessive axle housing deflection
- Misaligned axle shaft
- Worn thrust washers

e. Noisy Operation
- Insufficient lubricant
- Improper ring gear and pinion adjustment
- Unmatched ring gear and pinion
- Worn teeth in ring gear or pinion
- Excessive backlash in ring gear
- Insufficient backlash in ring gear
- Loose pinion bearings
- Loose differential side gear bearings
- Misaligned, sprung ring gear
- Loose differential housing bolts

f. Loss of Lubricant
- Lubricant level too high
- Worn axle shaft grease retainers
- Damaged bearing grease retainer
- Defective rear wheel bearing gasket
- Cracked rear axle housing
- Defective pinion oil seal
- Restricted lubricant return passage
- Scored, warped companion flange hub
- Too nigh wedges at spring seat

g. Overheating of Unit
- Lubricant level too high
- Use of incorrect grade of lubricant
- Bearings adjusted too tightly
- Misalignment of bearings
- Excessive wear in gears
- Insufficient backlash
- Insufficient ring gear to pinion gear clearance

### 4. REAR AXLE

a. Axle Breakage
- Improperly adjusted wheel bearings
- Misaligned axle shaft housing
- Vehicle overloading
- Erratic clutch operation
- Excessive speeds, rough roads
- Grabbing clutch
- Use of emergency brake to stop
- Normal fatigue

b. Noisy Operation
- Misaligned axle shaft housing
- Wear in axle shaft housing sleeve
- Bent, sprung axle shaft
- End play in pinion shaft bearings
- Excessive gear lash
- Improper adjustment pinion shaft bearings
- Loose pinion companion flange
- Improper wheel bearing adjustment
- Scuffed gear tooth contact surfaces

### 5. REAR WHEEL NOISES

- Wheel loose on axle shaft taper
- Worn wheel or axle shaft keyways
- Wheel hub or drum studs loose
- Axle shaft rubbing wheel bearing retainer
- Insufficient bearing lubrication
- Scored wheel bearing cup or cone
- Defective, brinelled wheel bearings
- Excessive axle shaft end play

## Clutch

### 1. CHATTERING

- Improper clutch adjustment
- Oil or grease on facings
- Loose universal joint flange
- Worn splines in transmission shaft
- Binding pressure plate
- Binding pressure levers or release levers
- Binding drive plate hub
- Glazed friction facings
- Unequal contact of pressure plate face
- Damaged drive or driven plates
- Bent clutch shaft or clutch plate
- Uneven spring pressures
- Improper alignment of transmission
- Loose facings on driver plate
- Excessive lash in power transmitting units

### 2. GRABBING

- Improper clutch adjustment
- Oil or grease on facings
- Pressure plate binding on studs or pins
- Binding pressure or release levers
- Worn friction facings
- Uneven spring pressures
- Sticking clutch pedal
- Binding of plates in clutch drum
- Improper alignment of transmission with clutch
- Worn rubber engine mountings
- Loose engine in frame
- Dragging brakes

### 3. SLIPPING

- Weak, broken clutch pressure springs
- Worn friction facings
- Improper clutch adjustment
- Oil or grease on facings
- Warped clutch plates
- Damaged pressure plate
- Binding pressure or release levers
- Binding clutch pedal
- Binding of driving pins in pressure plate holes
- Insufficient free pedal travel
- Driver riding clutch pedal
- Improper alignment of clutch, engine, transmission
- Facing off flywheel face and pressure plate face without facing open end of flywheel to original depth

### 4. DRAGGING

- Oil or grease in clutch
- Improper clutch adjustment
- Improper pedal adjustment
- Dust or dirt in clutch
- Worn, broken clutch facings
- Bent clutch facings
- Clutch plate hub binding on shaft
- Binding pilot bearing or bushing
- Sticking release sleeve
- Warped, damaged pressure plate
- Improper alignment

### 5. RATTLING

- Weak or broken release lever anti-rattle springs
- Damaged clutch plate
- Worn parts in release assembly
- Worn splines on clutch shaft or in plate hub
- Worn release bearing
- Dry or worn pilot bearing or bushing
- Unequal contact of pressure levers
- Worn driving pins in pressure plate
- Excessive backlash in transmission or prop shaft
- Worn transmission main drive gear bearing
- Bent clutch shaft
- Worn, dry clutch release sleeve
- Improper alignment

### 6. SQUEALING

- Lack of lubrication in release sleeve
- Inadequate lubrication in release bearing
- Dry clutch pilot bushing
- Bushing turning in crankshaft
- Worn transmission main drive gear bearing
- Misalignment of clutch with engine

### KNOCKING

- Play between pressure plate lugs and their guides
- Worn release lever guide pins
- Release levers striking clutch plate
- End play in crankshaft
- Incorrectly installed metal baffle plate

### VIBRATING

- Improper balance of assembly
- Bent clutch shaft
- Improper fitting of pressure plate
- Loose floating type clutch release sleeve
- Pressure spring off center
- Improper alignment
- Loose engine mountings
- Worn transmission rear bearing
- Worn universal joints
- Loose pinion bearing in rear end
- Loose emergency brake drum
- Flywheel out of balance
- Defective vibration dampener
- Loose flywheel
- Bent crankshaft

## Steering

### 1. HARD STEERING

- Too much caster
- Excessive, positive or negative camber
- Bent, worn king pin
- Sprung spindle
- Broken frame
- Sagging, broken spring
- Weak rear springs
- Underinflation
- Tight steering assembly
- Worn out steering
- Insufficient lubrication

### 2. LOOSE STEERING

- Worn steering linkage
- Weak springs in drag link
- Worn king pins, bushings
- Improper steering adjustment
- Worn tie rod ends
- Worn sector shaft bushing

### 3. WANDER OR WEAVE

- Insufficient caster
- Incorrect toe in adjustment
- Worn king pins, bushings
- Worn front wheel bearings
- Tight steering assembly
- Loose spring shackles
- Sagging, broken springs
- Bent, broken frame
- Loose U-bolts
- Overloading
- Unequal tire pressure
- Unequal tire wear

### 4. LOW SPEED SHIMMY

- Too much caster
- Loose king pins
- Loose drag link arm
- Loose steering gear
- Loose wheel bearings
- Misaligned drag link
- Sagging, broken springs
- Worn tie rod ends

### 5. HIGH SPEED SHIMMY

- Eccentric wheels, tires
- Out-of-balance wheels
- Broken, sagging springs
- Wheel or tire wobble
- Underinflation--front tires
- Unequal inflation
- Whipping propeller shaft
- Broken front body bolt
- Loose engine mounting
- Worn rear wheel bearings
- Worn universal joint
- Bad shock absorbers

### 6. ROAD SHOCK

- Unequal casters
- Excessive caster
- Sprung front axle
- Weak springs
- Bent steering arm
- Bent drag link
- Improper tire size
- Defective shock absorbers

### 7. SIDE PULL

- Unequal caster
- Bent steering knuckle
- Bent, broken frame
- Tight king pins
- One weak rear spring
- Unmatched tires
- Uneven inflation
- Oil-soaked brake lining
- Sagging front springs

### 8. ERRATING BRAKING

- Low, uneven tire pressure
- Incorrect brake adjustment
- Weak front springs
- Bent steering knuckle
- Oil soaked linings
- Insufficient or uneven caster

### 9. SCUFFED TIRES

- Incorrect toe in
- Incorrect toe out on turns
- Bent steering arm
- Bent spindle
- Improper tire inflation
- Wheel or tire wobble

## Tire Wear

### 1. TIRE FACTORS

- Underinflation
- Overinflation
- "Bleeding" hot tires
- Oversize tires
- Undersize tires
- Cuts -- neglected
- Snags -- neglected
- Bruises -- neglected
- Nail holes
- Duals -- mismatched for size
- Duals -- spacing too small
- Duals -- spacing too great
- Duals -- mismatched for type
- Extended use of boots or blowout patches in good tires
- "Imperfect" tire
- Duals -- mismatched for type of cord
- Duals -- improper matching of inflation pressure
- Wrong type tire for job

### 2. VEHICLE FACTORS

- Overloading
- Swaying loads
- Concentration of loads
- Excess overhang loads
- Toe-in
- Toe-out
- Caster
- Camber
- Wheel balance -- static
- Wheel balance -- dynamic
- Grabbing brakes
- Unequalized brakes
- Sprung axles
- Sagging axles
- Sprung frame
- Twisted frame
- Worn wheel bearings
- Loose wheel bearings
- Loose radius rods
- Loose "U" bolts
- Wobbly wheels
- Worn bushings
- Bent fenders causing abrasions
- Mud aprons causing abrasions
- Spring clip bolts causing abrasions
- Spring clips causing abrasions
- Bent rims
- Broken springs
- Improper adjustment of draglink
- Worn king pin
- Increase of horsepower in same weight vehicle
- Fifth wheel on trailer
- Improper placement of tandem axles

### 3. DRIVING HABITS

- Fast starts
- Quick stops
- Curb scraping
- Curb bumping
- Driving over curbs
- Excessive speed
- "Squealing" tires on curves
- Driving on street car tracks
- Running over rocks, sharp objects
- Parking on oily floors
- Riding edge of pavement with soft low shoulders
- Improper brake application
- "Spinning" tires in mud, slush, or on ice

### 4. ROAD CONDITIONS

- Abrasive road surfaces
- Rutted roads
- Highly crowned roads

### MISCELLANEOUS

- Atmospheric conditions (hot weather, hot roads)
- Storing tires exposed to sunlight
- Storing tires exposed to oil and grease
- Dirt penetrating cuts
- Water seeping into cuts
- Failure to switch tires regularly
- Wrong size flap used
- Worn flap re-used
- Loose tire chains
- Improper breaking-in of tires
- Neglect of slow leaks
- Foreign objects lodged between duals

# POWER Ratings

## For current production gasoline and diesel engines with and without standard accessories

| ENGINE MAKE AND MODEL | Number of Cylinders Bore and Stroke (in.) | MAX BRAKE H.P. at R.P.M. With Bare Engine | MAX BRAKE H.P. at R.P.M. With Standard Accessories | Piston Displacement (Cu. In.) | Compression Ratio | TORQUE Maximum Torque at R.P.M. (Lb. Ft.) | Engine Weight without Carburetor or Ignition (Lb.) |
|---|---|---|---|---|---|---|---|
| **AUTOCAR** | | | | | | | |
| 377 | 6-4x5 | 119-2600 | ..... | 377.0 | 5.85 | 292-1400 (BE) | 1230 |
| 447 | 6-4½x5½ | 145-2700 | ..... | 447.0 | 6.00 | 352-1300 (BE) | 1385 |
| 501 | 6-4½x5½ | 165-2700 | ..... | 501.0 | 6.00 | 402-1100 (BE) | 1395 |
| **BUDA** | | | | | | | |
| K-428 | 6-4⅛x4½ | 107-2400 | 95-2400 | 428.0 | 5.33 | 296-1100 (EA‡) | 905 |
| LO-525 | 6-4½x5½ | 157-2400 | 139-2400 | 525.0 | 5.00 | 396-1200 (EA) | 1195 |
| 6MO-893 | 6-5⅛x6 | 199-2000 | 170-2000 | 893.0 | 5.50 | 490-1000 | 2400 |
| 6MO-970 | 6-5⅛x6½ | 172-1400 | 147-1400 | 970.0 | 5.43 | 545-1090 | 2400 |
| **CHEVROLET** | | | | | | | |
| 1946 | 6-3½x3¼ | 90-3300 | 81.5-3100 | 216.5 | 6.50 | 168-1100 (EA) | 590* |
| 1946 (Note 1) | 6-3½x3¼ | 93-3100 | 83.5-3000 | 235.5 | 6.62 | 182-1000 (EA) | 590* |
| **CONTINENTAL** | | | | | | | |
| F-4124 | 4-3x4½ | 46-3000 | ..... | 123.7 | 6.50 | 86-1400 (BE) | 395 |
| F-4140 | 4-3⅜x4½ | 52-3000 | ..... | 139.6 | 6.30 | 108-1400 (BE) | 395 |
| F-4162 | 4-3½x4½ | 58-3000 | ..... | 162.4 | 6.10 | 122-1600 (BE) | 395 |
| F-5186 | 6-3x4½ | 59-3000 | ..... | 185.6 | 6.40 | 139-1000 (BE) | 515 |
| F-5209 | 6-3⅛x4½ | 70-3000 | ..... | 209.4 | 6.10 | 153-1200 (BE) | 515 |
| F-5226 | 6-3⅜x4½ | 72-3000 | ..... | 226.0 | 5.00 | 166-1000 (BE) | 515 |
| M-6271 | 6-3⅝x4½ | 89-2800 | ..... | 270.9 | 6.00 | 203-1200 (BE) | 755 |
| M-6290 | 6-3⅝x4½ | 93-2800 | ..... | 289.9 | 6.00 | 217-1000 (BE) | 755 |
| M-5330 | 6-4x4½ | 104-2800 | ..... | 329.4 | 5.10 | 245-1000 (BE) | 755 |
| B-5371 | 5-4½x4½ | 100-2300 | ..... | 370.9 | 5.00 | 278-1000 (BE) | 870 |
| T-5371 | 6-4½x4½ | 132-2600 | ..... | 370.9 | .... | 296-1200 (BE) | 1070 |
| B-6427 | 6-4½x4½ | 127-2600 | ..... | 427.2 | 5.90 | 323-1200 (BE) | 875 |
| T-6427 | 6-4½x4½ | 151-2600 | ..... | 427.2 | 6.20 | 340-1200 (BE) | 1075 |
| 22-R | 6-4½x5½ | 148-2400 | ..... | 501.0 | 5.70 | 387-1200 (BE) | 1360 |
| R-6513 | 6-4½x5½ | 170-2600 | ..... | 512.9 | 5.90 | 400-1200 (BE) | 1525 |
| R-5572 | 6-4½x5½ | 189-2500 | ..... | 571.7 | 5.90 | 440-1200 (BE) | 1525 |
| R-6602 | 6-4½x5½ | 199-2500 | ..... | 602.0 | 5.80 | 464-1200 (BE) | 1525 |
| S-5749 | 6-5⅛x5½ | 247-2600 | ..... | 748.8 | 6.10 | 576-1400 (BE) | 1365 |
| **DODGE** | | | | | | | |
| T-142, T-144 | 6-3⅜x4½ | 95-3600 | 80-3400 | 217.8 | 6.50 | 172-1200 (BE) | 500 |
| T-146 | 6-3⅜x4½ | 102-3800 | 80-3200 | 230.2 | 6.70 | 184-1200 (BE) | 525 |
| T-137 | 6-3⅜x4½ | 94-3200 | 74-2800 | 230.2 | 6.70 | 185-1200 (BE) | 570 |
| T-148, T-152 | 6-3⅜x4½ | 109-3600 | 87-3200 | 236.6 | 6.60 | 192-1200 (BE) | 575 |
| T-150, T-154 | 6-3⅜x4½ | 114-3600 | 97-3200 | 250.6 | 6.60 | 204-1200 (BE) | 580 |
| T-156 | 6-3⅜x4½ | 115-3200 | 106-3200 | 281.6 | 6.50 | 225-1200 (BE) | ... |
| T-158 | 6-3⅞x5 | 128-3000 | 111-2800 | 331.3 | 6.50 | 270-1200 (BE) | ... |
| **FORD** | | | | | | | |
| 7HT | 6-3.30x4.4 | 95-3300 | ..... | 226.0 | 6.80 | 180-1200 (BE) | ... |
| 8RT | 8-3⅛x3⅜ | 100-3800 | 89-3600 | 239.4 | 6.80 | 180-2000 (BE) | ... |
| 8EQ | 8-3½x4½ | 145-3600 | ..... | 337.0 | 6.40 | 255-1800 (BE) | |
| **GMC (General Motors Truck)** | | | | | | | |
| 228 | 6-3⅜x3⅞ | 95-3200 | 85-3000 | 226.0 | 6.75 | 163-1000 (BE) | ... |
| 248 | 6-3⅝x3⅞ | 100-3100 | 89-3000 | 248.5 | 6.75 | 202-1000 (BE) | ... |
| 270 | 6-3⅝x4½ | 104-3000 | 95-3000 | 269.5 | 6.75 | 222-1000 (BE) | ... |
| 308 | 6-3⅞x4½ | 122-3200 | 100-2800 | 308.2 | 6.00 | 241-1000 (BE) | ... |
| 361 | 6-4⅛x4½ | 136-3000 | 115-2800 | 360.8 | 6.00 | 273-1000 (BE) | ... |
| 426 | 6-4½x5 | 145-2600 | 127-2400 | 425.6 | 6.00 | 345-1000 (BE) | ... |
| 477 | 6-4½x5 | 154-2600 | 135-2400 | 477.1 | 6.00 | 385-1000 (BE) | ... |
| **HALL-SCOTT** | | | | | | | |
| 470 | 6-5⅛x6 | 245-2100 | ..... | 855.0 | 5.20 | 660-1600 (BE) | 2150 |
| 480 | 6-5⅛x6 | 266-2100 | ..... | 935.0 | 5.70 | 760-1400 (BE) | 2150 |
| 400 | 6-5⅛x7 | 286-1800 | 260-1800 | 1090.0 | 5.70 | 865-1200 (BE) | 2200 |
| **HERCULES** | | | | | | | |
| QXLD | 6-3⅜x4½ | 91-3200 | 77-3200 | 236.7 | 6.50 | 189-1400 (BE) | 445 |
| JXE | 6-3⅜x4½ | 91-3200 | 77-3200 | 245.0 | 6.50 | 184-1400 (BE) | 590 |
| JXB | 6-3⅝x4½ | 98-3200 | 83-3200 | 263.0 | 6.50 | 190-1400 (BE) | 605 |
| JXC | 6-3⅝x4½ | 103-3200 | 87.5-3200 | 282.0 | 6.50 | 207-1400 (BE) | 605 |
| JXD | 6-4x4½ | 113-3000 | 95-3000 | 320.0 | 6.50 | 240-1200 (BE) | 605 |
| JXLD | 6-4x4½ | 131-3200 | 111-3200 | 339.0 | 6.90 | 272-1400 (BE) | 630 |
| WXC-3 | 6-4⅛x4½ | 131-2600 | 111-2500 | 383.0 | 6.60 | 296-1400 (BE) | 820 |
| WXLC | 6-4x4½ | 123-2600 | 104-2600 | 358.0 | 6.60 | 275-1200 (BE) | 811 |
| WXLC-3 | 6-4⅛x4½ | 139-2600 | 118-2600 | 404.0 | 6.60 | 312-1300 (BE) | 825 |
| RXB | 6-4½x5½ | 137-2400 | 116-2400 | 501.0 | 6.50 | 350-1200 (BE) | 1000 |
| RXC | 6-4½x5½ | 143-2400 | 121-2400 | 529.2 | 6.50 | 372-1200 (BE) | 1010 |
| TDXB | 6-4½x5½ | 160-2600 | 136-2600 | 474.0 | 6.50 | 366-1400 (BE) | 1345 |
| RXLC | 6-4½x5½ | 146-2400 | 124-2400 | 529.2 | 6.20 | 408-1100 (BE) | 1195 |
| RXLD | 6-4½x5½ | 154-2400 | 131-2400 | 558.0 | 6.50 | 430-1100 (BE) | 1195 |
| RXLDM | 6-4⅝x5½ | 180-2600 | 153-2600 | 558.0 | 6.50 | 443-1400 (BE) | 1470 |
| HXB | 6-5x6 | 159-2000 | 135-2000 | 707.0 | 5.75 | 502-900 (BE) | 1810 |
| HXC | 6-5⅛x6 | 175-2000 | 148-2000 | 779.0 | 5.75 | 555-900 (BE) | 1810 |
| HXD | 6-5½x6 | 202-2000 | 172-2000 | 855.0 | 5.75 | 645-900 (BE) | 1830 |
| HXE | 6-5⅝x6 | 227-2000 | 193-2000 | 935.0 | 6.20 | 750-900 (BE) | 1830 |
| **INTERNAT'L** | | | | | | | |
| GRD-214 | 6-3⅜x4½ | 82.4-3400 | 73-3200 | 213.2 | 6.30 | 158-1000 (EA) | 593* |
| GRD-233 | 6-3⅜x4½ | 93-3400 | 80-3400 | 232.6 | 6.30 | 176-800 (EA) | 624* |
| BLD-250 | 6-3⅜x4½ | 99.8-3200 | 84-3000 | 250.5 | 6.30 | 194-800 (EA) | 875* |
| BLD-269 | 6-3⅜x4½ | 100-3000 | 89-2800 | 269.1 | 6.30 | 216-1000 (EA) | 874* |
| RED-261 | 6-4⅛x4½ | 126-2800 | 112-2600 | 360.6 | 6.30 | 278-1000 (EA) | 1067* |
| RED-401 | 6-4½x5 | 140-2800 | 126-2600 | 400.9 | 6.30 | 314-1000 (EA) | 1090* |
| RED-450 | 6-4½x5 | 148-2600 | 133-2600 | 451.0 | 6.30 | 348-1000 (EA) | 1076* |
| **REO** | | | | | | | |
| GC-245 | 6-3½x4½ | 89-3100 | ..... | 245.0 | 6.20 | 191-1000 (BE) | 763* |
| GC-288 | 6-3½x5 | 94-3000 | ..... | 288.0 | 6.20 | 221-1200 (BE) | 780* |
| GC-310 | 6-3½x5 | 101-3000 | ..... | 310.0 | 6.20 | 243-900 (BE) | 785* |
| **WAUKESHA** | | | | | | | |
| 68Z | 6-4x4½ | 105-3000 | 89-3000 | 320.0 | 5.75 | 235-1000 (BE) | 706 |
| 6MZA | 6-4½x4½ | 126-2800 | 113-2800 | 404.0 | 5.90 | 290-1000 (BE) | 920 |
| 6SRKR | 6-4½x5½ | 126-2250 | 109-2250 | 517.0 | 5.50 | 389-600 (BE) | 1225 |
| 140-GKA | 6-4½x5½ | 142-2250 | 127-2250 | 525.0 | 6.00 | 425-1000 (BE) | 1390 |
| 140-GZ(B) | 6-4½x5½ | 188-2600 | 171-2600 | 554.0 | 6.40 | 480-800 (BE) | 1390 |
| 145-GK(A) | 6-5⅛x6 | 186-2000 | 172-2000 | 779.0 | 6.20 | 590-1200 (BE) | 1810 |
| 145GZ | 6-5⅛x6 | 220-2000 | 205-2000 | 817.0 | 6.00 | 615-1200 (BE) | 1810 |
| 6WAK | 6-6⅛x6½ | 235-1600 | 193-1300 | 1197.0 | 5.20 | 865-900 (BE) | 3050 |
| **WHITE** | | | | | | | |
| 100A | 6-3⅜x4½ | 90-2800 | ..... | 250.0 | 6.75 | 185-1400 (BE) | 982 |
| 120A | 6-3⅜x4½ | 110-2800 | ..... | 318.0 | 6.62 | 250-1200 (BE) | 1003 |
| 140A | 6-3⅝x5½ | 125-2500 | ..... | 362.0 | 6.28 | 285-1400 (BE) | 1080 |
| 150A | 6-4x5½ | 135-2800 | ..... | 386.0 | 6.40 | 315-1300 (BE) | 1300* |
| 260A | 6-4½x5 | 170-2800 | ..... | 451.0 | 6.25 | 350-1200 (BE) | 1409* |
| 280A | 6-4½x5 | 184-2800 | ..... | 504.0 | 6.00 | 405-1200 (BE) | 1442* |
| **WILLYS** | | | | | | | |
| 4-53 | 4-3⅛x4½ | 53-4000 | ..... | 134.2 | 6.48 | 105-2000 (BE) | 364 |

## DIESELS

| ENGINE MAKE AND MODEL | Number of Cylinders Bore and Stroke (in.) | MAX BRAKE H.P. at R.P.M. With Bare Engine | MAX BRAKE H.P. at R.P.M. With Standard Accessories | Piston Displacement (Cu. In.) | Compression Ratio | TORQUE Maximum Torque at R.P.M. (Lb. Ft.) | Engine Weight without Carburetor or Igniton (Lb.) |
|---|---|---|---|---|---|---|---|
| **BUDA** | | | | | | | |
| 6-DT-468 | 6-4½x5½ | 113-2000 | 89-2000 | 468 | 14.2 | 268.5-1100 | 1435 |
| 6-DC-844 | 6-5½x6½ | 180-1800 | 150-1800 | 844 | 16.0 | 460-1100 | 2850 |
| 6-DCS-844 | 6-5½x6½ | 225-1800 | 185-1800 | 844 | .... | 530-1250 | .... |
| 8DC-1125 | 8-5½x6½ | 239-1800 | 197-1800 | 1125.0 | 13.0 | 570-1100 | .... |
| 8DCS-1125 | 8-5½x6½ | 300-1800 | 242-1800 | 1125.0 | .... | 700-1250 | .... |
| **CONTINENTAL** | | | | | | | |
| TD-6427 | 6-4⅝x4⅞ | 112-2400 | ..... | 427 | 15.0 | 300-1200 | 1270 |
| RD-6572 | 6-4½x5½ | 150-2200 | ..... | 572 | 15.0 | 400-1200 | 1785 |
| **CUMMINS** | | | | | | | |
| HB-400 | 4-4½x6 | ‡100-1800 | 83-1800 | 448 | 17.0 | 340-800 | 1930 |
| HB-600 | 6-4½x6 | ‡150-1800 | 125-1800 | 672 | 17.0 | 500-800 | 2540 |
| 6HBS-600 | 6-4½x6 | ‡200-1800 | 175-1800 | 672 | 14.0 | 525-1400 | 3000 |
| NH8-600 | 6-5½x6 | 200-2100 | 174-2100 | 743 | 13.5 | 575-1400 | 2500 |
| 6NH8S-600 | 6-5½x6 | 275-2100 | 240-2100 | 743 | 13.5 | 710-1600 | 3520 |
| **GEN'L MOTORS** | | | | | | | |
| 3-71 | 3-4½x5 | ..... | ‡100-2000 | 213 | 16.0 | 300-1300 | 1175 |
| 4-71 | 4-4½x5 | ..... | ‡133-2000 | 284 | 16.0 | 400-1300 | 1300 |
| 6-71 | 6-4½x5 | ..... | ‡200-2000 | 425 | 16.0 | 600-1300 | 1635 |
| **HERCULES** | | | | | | | |
| DJXB | 6-3⅜x4½ | 77-2600 | 66-2600 | 260 | 15.0 | 179-1300 | 950 |
| DJXC | 6-3⅝x4½ | 83-2500 | 71-2600 | 298 | 15.0 | 208-1300 | 950 |
| DJXH | 6-3⅝x4½ | 99-2600 | 84-2800 | 298 | 15.0 | 320-1300 | 980 |
| DWXC | 6-4x4½ | 118-2600 | 100-2600 | 358 | 15.0 | 284-1600 | 1350 |
| DWXD | 6-4⅛x4½ | 135-2600 | 115-2600 | 404 | 15.0 | 320-1600 | 1350 |
| DRXB | 6-4⅜x5½ | 132-2200 | 112-2200 | 474 | 15.0 | 340-1200 | 1600 |
| DRXC | 6-4⅝x5½ | 147-2200 | 125-2200 | 529 | 15.0 | 395-1200 | 1600 |
| DFXB | 6-5x6 | 190-2100 | 162-2100 | 707 | 14.8 | 530-1350 | 2500 |
| DFXC | 6-5⅛x6 | 204-2100 | 173-2100 | 779 | 14.8 | 585-1350 | 2500 |
| DFXD | 6-5½x6 | 217-2100 | 184-2100 | 855 | 14.8 | 645-1200 | 2500 |
| DFXE | 6-5⅝x6 | 228-2100 | 194-2100 | 895 | 14.8 | 680-1200 | 2500 |
| DFXH | 6-5⅞x6 | 260-2100 | 221-2100 | 935 | 14.8 | 750-1200 | 2575 |
| **WAUKESHA** | | | | | | | |
| 190DLB | 6-3⅞x4 | 64-2200 | 53-1800 | 265.0 | 15.3 | 184-1200 | .... |
| 148DK | 6-5⅛x6 | 168-2000 | 138-2000 | 779 | 17.5 | 530-1200 | 2150 |
| 6WAKD | 6-6⅛x6½ | 225-1600 | 185-1600 | 1197 | 16.5 | 845-900 | 3400 |

ABBREVIATIONS: * Weight with ignition and carburetor. ‡ Without fan or muffler. A Also available in "High-Output" model developing greater power at higher speeds. B. "High-Output" model. (BE) Bare Engine. (EA) With Standard Accessories.

Note 1: On c.o.e. models bare engine develops 90 hp. @ 3100; with accessories 80 hp. @ 3000; torque is 179 lb.-ft. @ 1000 (EA); weight, 608 lb.

# Transportation Engineering Formulas

SELECTION & OPERATION

## PISTON DISPLACEMENT

Piston Displacement in cu. in. = B X B X .7854 X S X No. of Cylinders

B = Bore
S = Stroke
.7854 = Constant comprising the conversion of the area of a square to the area of a circle of the same dimensions

## TORQUE AT PEAK HORSEPOWER

$$\text{Torque at Peak HP} = \frac{\text{HP} \times 5252}{\text{RPM}}$$

5252 = Constant resulting from conversion of Torque and RPM into horsepower
HP = Maximum net horsepower (See Horsepower below)
Peak HP = Maximum useful horsepower

## VEHICLE SPEED

$$\text{MPH} = \frac{\text{RPM} \times \text{R}}{168 \times \text{FGR}}$$

MPH = Miles Per Hour
RPM = Engine Revolutions Per Minute
R = Rolling Radius
FGR = Final Gear Ratio
168 = A constant comprising the conversion of rolling radius in inches to wheel circumference in feet; wheel revolutions per minute to wheel revolutions per hour; feet per hour to miles per hour.

## AMA HORSEPOWER

(For License Purposes Only)

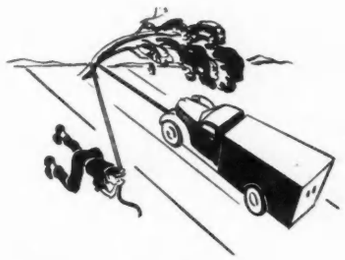
$$\text{AMA HP} = \frac{\text{B} \times \text{B} \times \text{No. of Cyl.}}{2.5}$$

B = Cylinder Bore
2.5 = Constant based on average engine in 1908

## FINAL GEAR RATIO

$$\text{FGR} = \frac{\text{R} \times \text{GBV W} \times (\text{GA} + .012)}{\text{lb.in. Torque} \times .90}$$

GA = Grade Ability
GVW = Gross Vehicle Weight
lb.in. Torque = 12 X lb. ft. Torque
R = Rolling Radius in inches
.90 = Efficency for all real axles except worm, then .85
.012 = Rolling resistance on hard-surfaced roads



## GRADE ABILITY

$$\text{GA} = \frac{\text{TE}}{\text{GVW}} \text{ minus } .012$$

GA = Grade Ability
TE = Tractive Effort
GVW = Gross Vehicle Weight
.012 = 12 lb. per 1000 lb., rolling resistance on hard-surfaced roads

## DRAWBAR PULL

$$\text{DP} = \frac{.90 \times \text{lb.in Torque} \times \text{FGR}}{\text{R}} - .012 \text{ GVW}$$

DP = Drawbar Pull
R = Rolling Radius in inches
FGR = Final Gear Ratio
GVW = Gross Vehicle Weight
.90 = Efficiency for all rear axles except worm, then .85
lb.in. Torque = 12 times Torque in lb. ft.
.012 = 12 lb. per 1000 lb. Rolling Resistance

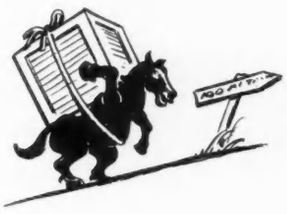
## AIR RESISTANCE

Air Resistance = .0025 X $(\text{MPH})^2$ X FA
FA = Frontal area of equipment in sq. ft.
MPH = Miles Per Hour

## ENGINE SPEED

$$\text{RPM} = \frac{\text{MPH} \times 168 \times \text{FGR}}{\text{R}}$$

(See vehicle speed left for abbreviation)



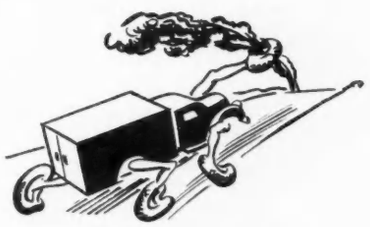

## HORSEPOWER

Maximum Net Horsepower (maximum gross horsepower less power consumed by engine accessories) is the only horsepower that should be used in trasnportation engineering formulas, and can be determined only by using a dynamonmeter or may be procured from the manufacturer.

## MAXIMUM NET TORQUE

$$\text{Max.Net Torque} = \frac{\text{Torque at Peak HP} \times 5}{4}$$

(This is approximate and should be used only when actual net torque is not known)
5 and 4 = Figures based on an analysis of a number of torque curves



## TRACTIVE EFFORT

$$\text{TE} = \frac{\text{lb. in. Torque} \times \text{FGR} \times .90}{\text{R}}$$

R = Rolling Radius in inches
FGR = Final Gear Ratio
lb.in. Torque = 12 times Torque in lb. ft.
.90 = Efficiency for all rear axles except worm, then .85

## MAXIMUM NET ENGINE TORQUE

Torque in lb.ft. = .70 X cu.in.Piston Displacement. (This is approximate and should be used only when actual torque is not known)
.70 = Average figure based on analysis of number of torque curves.

*Italic figure*, thus *(30)* denotes limit now effective by proclamation or order of the Governor or other State Official.

# STATE SIZE AND

| | SIZE RESTRICTIONS (K) | | | | | | | GROSS WEIGHT (LEGAL LIMITS) | | (See Note) PRACTICAL GROSS WEIGHT LIMITS (K) (In thousands of pounds) (Where No distinction Is Made Between Pneumatic and Solid Tire Limits, Below Limits Apply to Both) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Width (Inches) | Height (Feet) | LENGTH: Single Unit | LENGTH: Tractor semi-Trailer | LENGTH: Other Combinations | Number of Trailers (Semi-Trailer-½) | Minimum Tandem Axle Spacing | Per Inch of Tire Width | Per Axle (1000 Lb.) | 4-Wheel Single Unit | 6-Wheel Single Unit | 4-Wh. Tractor 2-Wh. Semi-T. | 4-Wh. Tractor 4-Wh. Semi-T. | 6-Wh. Tractor 4-Wh. Semi-T. | 4-Wh. Truck 4-Wh. Trailer | 4-Wh. Truck 6-Wh. Trailer | 6-Wh. Truck 4-Wh. Trailer | 6-Wh. Truck 6-Wh. Trailer | 4-Wh. Tractor 2-Wh. Semi-T. 4-Wh. Trailer | 4-Wh. Tractor 4-Wh. Semi-T. 4-Wh. Trailer | 6-Wh. Tractor 4-Wh. Semi-T. 6-Wh. Trailer |
| TVX Ala. | 96 | 12½ | 35 | 45 | NP | ½ | NS | 600 | 181 | 36 | 46.9 | 53.9 | 53.9 | 53.9 | NP | NP | NP | NP | NP | NP | NP |
| Ariz. | 102 | 13½ | 35 | 65 | 65 | 1½ | NS | 700 | 18 | 36 | 53.6 | 54 | 77.6 | 77.6 | 77.6 | 77.6 | 77.6 | 77.6 | 77.6 | 77.6 | 77.6 |
| VX Ark. | 96 | 12½ | 35 | 50 | 60 | 1 or ½ | 48 | Table | Id | 36 | 50 | 54 | 38.3 | 73.2 | 72 | 73.2 | 73.2 | 73.2 | NP | NP | NP |
| XZ Cal. | 96 | 13½ | 35 | 60 | 60 | NR | NS | NS-P 600-S | 18 | 36 | 54 | 54 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 |
| X Colo. | 96 102 b | 12½ | 35 | 60 | 60 | 2 | 40 | NS-P 600-S | 18-I 18-J | 30 | 46 | 54 | 72 | 73.6 | 72 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 | 73.6 |
| TZ Conn. | 102 | 12½ | 45 | 45 | NP | ½ | NS | NS-P 800-S | NS(Z) | 37 | 50 | 50 | 50 | 50 | NP | NP | NP | NP | NP | NP | NP |
| Z Del. | 96 | 12½ | 35 | 50 | 60 | 1½ | NS | 40 700 | 20 ... | 30 c | 40 c | 48 c | 60 c | 60 c | 60 c | 60 c | 60 c | 60 c | 60 c | 60 c | 60 c |
| V D.C. | 96 | 12½ | 35 | 50 | 50 | 1 or ½ | 40 | NS | 22 | 44 | 65.4 | 65.4 | 65.4 | 65.4 | 65.4 | 65.4 | 65.4 | 65.4 | NP | NP | NP |
| Fla. | 96 | 12½ | 35 | 50 | 50 | 1 or ½ | NS | 600 550 | 18Q | 24 | 40 | 40 | 60 | 60 | 60 | 60 | 60 | 60 | NP | NP | NP |
| X Ga. | 96 | 13½ | 35 | 45 | 45 | 1 or ½ | 40 | NS | 18-I 18-J | 36 | 46.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 |
| V2 Idaho | 96 | 14 | 35 | 60 | 65 | 1½ | NS | 800 o | 18 | 28 | 42 | 42 | 55 | 60 | 56 | 66 | 66 | 66 | 66 | 66 | 66 |
| TV1X Illinois | 96 | NS | 42 | 45 | 45 | 1½ | 40 | 800 | 18 | 36 | 41 | 45 | 59 | 59 | 63 | 63 | 72 | 72 | 72 | 72 | 72 |
| X Indiana | 96 | 12 | 36k | 40 | 40 | 1½ | 40 | 800 | 18 | 36 | 54 47.6 | 54 50.4 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 | 57.7 53.9 |
| TX Iowa | 96 | 12½ 12 | 35K ... | 45 | NP | ½ | 40 | NS | IB 17 | 36 | 50 | 54 | 57.7 | 57.7 | NP | NP | NP | NP | NP | NP | NP |
| X Kansas | 96 | 12½ | 35k | 45 | 45 | 1 or ½ | 40 | NS | 18-I 16-J | 24 28L | 34 | 53.9 | 53.9 | 53.9 | 48 | 58 | 58 | 63 | NP | NP | NP |
| TZ Ky. | 96 | 12½ | 35 | 45 | NP | ½ | NS | 600 | 18 | 30 | 42 | 42 | 42 | 42 | NP | NP | NP | NP | NP | NP | NP |
| Z La. | 96 | 12½ | 35 | 50 | 60 | 1 or ½ | 40 | Table | 18-I 16-J | 16 | 36 | 36 | 50 | 64 | 54 | NP | 58 | NP | NP | NP | NP |
| Maine | 96 | 12½ | 45h | 45h | 45h | 1 or ½ | NS | 600 | 22-G | 32 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | NP | NP | NP |
| X Md. | 96 | NR | 55 | 55 | 55 | NR | NS | 600 | 22.4 18-e | 44.8 | 58.4 | 54 | 65.2 | 65.2 | 65.2 | 65.2 | 65.2 | 65.2 | 65.2 | 65.2 | 65.2 |
| Mass. | 96 102 b | NR | 35 | 45 | NS | T 1 or ½ | NS | 800 | NR | 36 | 50 | 50 | 50 | 50 | 45.8 | 45.8 | 51 | 51 | NP | NP | NP |
| P Mich. | 96 102 b | 12½ | 35 | 50 | 50 | 1½ | NS | Table | 18-P 16-S | 35-PW 32-S | 44-PW 39.2-S | 54-PW 48-S | 62-PW 55.2-S | 70-PW 62.4-S | 72-PW 64-S | 60-PW 71.2-S | 60-PW 71.2-S | 88-PW 78.4-S | 90-PW 80-S | 98-Pw 87.2-S | 114-PW 101.6-S |
| TX Minn. | 96 | 12½ | 40 | 45 | 45 | 1 or ½ | NS | NR | 18-P 10.6-S | 36 | 46.9 32.4 | 54 32.4 | 57.7 34.6 | 57.7 34.6 | 57.7 34.6 | 57.7 34.6 | 57.7 34.6 | 57.7 34.6 | NP | KP | NP |
| Miss. | 96 | 12½ | 35 | 45 | 45 | 1 or ½ | 40 | NS | 18-I 16-J | 36 | 46.6 | 52.6 | 52.6 | 52.6 | 52.6 | 52.6 | 52.6 | 52.6 | NP | NP | NP |
| X Mo. | 96 | 12½ | 35 | 45 | 45 | NR | NS | 600 | 18 | 36 | 46.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | NP | NP | NP |
| V1X Mont. | 96 | 13½ | 35 | 60 | 60 | 1 or ½ | NS | NS | 18 | 36 | 50 | 54 | 69 | 73.2 | 72 | 73.2 | 73.2 | 73.2 | NP | NP | NP |
| TX Neb. | 96 | 12½ | 35 | 50 | 50 | 1½ | NS | NS | IB 16 | 36 | 50 | 54 | 62.3 | 62.3 | 62.3 | 62.3 | 62.3 | 62.3 | 62.3 | 62.3 | 62.3 |
| Nev. | NR | NR | NR | NR | NR | NR | 42 | 600 | 18 | 36 | 48.3 | 54 | 66.8 | 76.8 | 76.8 | 76.8 | 76.8 | 76.8 | 76.8 | 76.8 | 76.8 |
| N. H. | 96 | NR | 35 | 45 | 45 | NR | NS | 800 | 18 | 30 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 | 47.5 |
| N. J. | 96 | 12½ | 35 | 45 | 50 | 1 or ½ | NS | Table | Table | 30 | 40 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | NP | NP | NP |
| V1X N. M. | 96 100 b | 12½ | 35 | 65 | 65 | 1 or ½ | 40 | 700-P 500-S | 18 | 36 | 50.2 | 54 | 69 | 69 | 69 | 69 | 69 | 69 | NP | NP | NP |
| X N. Y. | 96 106 b | 13 | 35 | 50 | 50 | 1 or ½ | 46 | 600-P 340-S | 22.4-P 17.9-S | 36-P 28.8-S | 44-P 35.2-S | 54-P 43.2-S | 61.5-P 49.2-S | 61.5-P 49.2-S | 61.5-P 49.2-S | 61.5-P 49.2-S | 61.5-P 49.2-S | 61.5-P 49.2-S | NP | NP | NP |

# WEIGHT LIMITS

Unauthorized Reproduction in Whole or in Part Prohibited

Corrected to April 1, 1948

| STATE | SIZE RESTRICTIONS (K) | | | | | | | GROSS WEIGHT (LEGAL UNITS) | | (See Note) PRACTICAL GROSS WEIGHT LIMITS (K) (In thousands of pounds) (Where No Distinction Is Made Between Pneumatic and Solid Tire Limits, Below Limits Apply in Both) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Width (inches) | Height (Feet) | LENGTH: Single Unit | LENGTH: Tractor Semi-Trailer | LENGTH: Other Combination | Number of Trailers (Semi-Trailer=½) | Minimum Tandem Axle Spacing | Per Inch of Tire Width | Per Axle (1000 lb.) | 4-Wheel Single Unit | 6-Wheel Single Unit | 4-Wh. Tractor 2-Wh. Semi-T. | 4-Wh. Tractor 4-Wh. Semi-T. | 6-Wh. Tractor 4-Wh. Semi-T. | 4-Wh. Truck 4-Wh. Trailer | 4-Wh. Truck 6-Wh. Trailer | 6-Wh. Truck 4-Wh. Trailer | 6-Wh. Truck 6-Wh. Trailer | 4-Wh. Tractor 2-Wh. Semi-T. 4-Wh. Trailer | 4-Wh. Tractor 4-Wh. Semi-T. 4-Wh. Trailer | 6-Wh. Tractor 4-Wh. Semi-T. 6-Wh. Trailer |
| N.C. | 96 | 12½ | 35 | .. | .. | 1 or ½ | 48 | 600 | 18-I 18-J | 25 L | 40 | 40 | 50 | 50 | 50 | 50 | 50 | 50 | NP | NP | NP |
| TX N.D. | 96 | 12½ | 35 | 45 | 45 | 1 or ½ | 40 | 550 | 18 14-f | 36 | 50.2 | 54 | 57.7 | 57.7 | 57.7 | 57.7 | 57.7 | 57.7 | NP | NP | NP |
| X Ohio | 96 | 12½ | 35 | 45 | 60 | NR | NS | 650 | 18-P 16-S | 36-P 32-S | 50.2-P 40.2-S | 54-P 50.2-S | 63.7-P 50.2-S | 63.7-P 50.2-S | 72-P 58.2-S | 75-P 58.2-S | 75-P 58.2-S | 75-P 58.2-S | 75-P 58.2-S | 75-P 58.2-S | 75-P 58.2-S |
| Okla. | 93 | 12½ | 35 | 50 | 50 | 1½ | NS | 600 | 18 | 36 | 50 | 54 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| /XZ Ore. | 95 | 12½ | 35 | 60 | 50 | NR | 40 | 600 q | 18 w 16 x | 36 | 54 | 54 | 54 | 54 | 69 | 69 | 69 | 69 | 69 | 69 | 69 |
| Z Pa. | 96 | 12½ | 33 | 45 | 50 | 1 or ½ | 36 | 800 | 20 | 30 H | 40 H | 45 | 45 | 45 | 58 | 65 | 65 | 65 | NP | NP | NP |
| R.I. | 102 | 12½ | 35 | 45 | 45 | 1 or ½ | NS | 800 | 22.4 | 32-P 28-S | 40 | 55 46 | 55 46 | 55 46 | 64-P 56-S | 72-P 68-S | 72-P 68-S | 80 | NP | NP | NP |
| X S.C. | 96 | 12½ | 40 | 50 | 50 | 1 or ½ | 40 | NR | 18-I 16-J | 32 | 40 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | NP | NP | NP |
| X S.D. | 96 | 13 | 35X | 50 | 50 | 1 or ½ | 40 | 600 | 18-I 16-J | 36 | 50 | 54 | 64.6 | 64.6 | 64.6 | 64.6 | 64.6 | 64.6 | NP | NP | NP |
| Tenn. | 96 | 12½ | 35 | 45 | 45 | 1 or ½ | 40 | NS | 18 | 35 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | NP | NP | NP |
| X Tex. | 96 | 12½ | 35 | 45 | 45 | 1 or ½ | 40 | 650-I 800-J | 18-I 16-J | 36 | 46 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | NP | NP | NP |
| XZ Utah | 96 | 14 | 45 | 60 | 60 | NR | NS | ... | 18-P 13.5-S | 36 | 51 | 54 | 69 | 79.9 | 72 | 79.9 | 79.9 | 79.9 | 79.9 | 79.9 | 79.9 |
| Z Vt. | 96 | 12½ | 50 | 50 | 50 | 1 or ½ | 40 | 600 | NR | 30 M 16 | 40 M 16 | 50 M 18 | 50 M 16 | 50 M 16 | 50 M 16 | 50 M 16 | 50 M 16 | 50 M 16 | NP | NP | NP |
| VZ Va. | 98 | 12½ | 33 g | 45 | 45 | 1 or ½ | 40 | 650 | 18 16 | 36* 24 | 50* 35 | 50* 35 | 50* 35 | 50* 35 | 50* 35 | 50* 35 | 50* 35 | 50* 35 | NP | NP | NP |
| X Wash. | 96 | 12½ | 35 | 50 | 60 | 1 or ½ | NS | 500 | 18 | 26 | 36 | 54 | 58 | 58 | 58 | 58 | 62 | 68 | | | |
| W XZ W. Va. | 96 | 12½ | 35 | 45 | 45 | NR | 40 | NS | 18-PB 14-SB | 36-PWB 28-SB | 48-PWB 42-SB | 54-PWB 42-SB | 72-PWB 56-SB | 90-PWB 70-SB | 72-PWB 56-SB | 90-PWB 70-SB | 90-PWB 70-SB | 102.4PB 81.9-SB | 90-PWB 70-SB | 102.4PB 81.9-SB | 102.4PB 81.9-SB |
| V Wisc. | 96 d | 12½ | 35 | 45 | 45 | 1 or ½ | 40 | 800 | 19-C 12-D | 30-Ck 15-D | 54-C 32-D | 54-C 38-D | 63-C 38-D | 63-C 38-D | 63-C 38-D | 63-C 36-D | 63-C 38-D | 63-C 38-D | NP | NP | NP |
| X Wyo. | 96 | 12½ | 40 | 50 | 60 | 2 | NS | 800 | 18-I 16-J | 36 | 52.7 | 54 | 61.2 | 61.2 | 69.7 | 69.7 | 69.7 | 69.7 | 69.7 | 69.7 | 69.7 |

*Italic figures denote limit now effective by proclamation or order of Governor or other State Official.*

‖ -See Note at right.

a-If registered before 1932.

b-At rear tires, when solids changed to pneumatics.

c-With power brakes.

d-104 inches for urban buses.

e-If less than 50 inches apart.

f-If less than 8 feet apart.

g-Buses allowed 35 ft. length.

h-Trailers are limited to 26 ft.

k-Buses permitted 40 ft.

l-If equipped with dual tires.

m-13,000lbs. on tandem axles 3 ft. 6 in. apart; applies June 1 to Feb. 28; differs with season.

q-500 lbs. when total tires under 30 inches wide.

t-Dual tires 8 in. wide or over.

w-Permissible weight on paved highways.

x-Permissible weight on unpaved highways.

z-City of Clinton, Ill., limits truck gross weight to 12,000 lbs.

B-In "Industrial Areas" - varies for different "areas."

C-Permissible on "Class A" highways.

D-Permissible on "Class B" highways.

E-Governor has not approved.

S-Axles less than 10 ft. apart limited to 16,000 lbs.

H-Maximum shown - gross depends on chassis weight.

I-Permissible on balloon tires.

J-Permissible on other than balloon tires.

K-May exceed on designated highways with permit.

L-Buses permitted 22,500 maximum net weight.

M-On State highways.

N-40,000 lbs. with pneumatic tires, 3 axles, 2 hubs and brakes on each hub.

NP-Not permitted.

NR-No restriction.

NS-Not specified.

P-Pneumatic tires.

PL-Pay load.

Q-If equipped with power brakes.

S-Solid tires.

T-With the following exceptions full trailers are permitted the same gross weight as other single units: -

Ala., Iowa, Conn., Ky., - Full trailers prohibited.

Ill.- All trailers limited to 32,000 lbs. gross.

Mass. - Trailers limited to 1,000 lbs. capacity.

Neb.- All trailers limited to 16,000 lbs. gross.

N. Dak.- Trailers, 35,000 lbs. Weight of trailers is limited by axle limitations and formula, in states determining gross weight by formula.

Table- There is a table of axle weights based upon tire widths.

V-Solid tires prohibited.

V1-Solid tires prohibited except on property carrying vehicles operating 10 mph or less.

V2-Solid tires limited to 20 miles per hour under 10,000 lbs., and to 12 mph over 10,000 lbs.

W-See Note above.

W1-Maximum gross when all axles carry maximum load - See "Note" above.

X-States where gross weight is determined by formula (See State under "Bridge Formulas" in next column and formula computations on next page.)

Z-See "Restrictions Peculiar to Certain States" on next page.

### NOTE ON "W" AND SHADED SQUARES

Except when shown in squares shaded with parallel lines or when followed by the letter "W", the above gross weight limits are the limits fixed by state law.

When shown in shaded squares the above limits are computations made by the National Highway Users Conference to show what it considers to be practical gross weights where gross weights are arrived at by application of one of the formulae shown below under Footnote "X". In making these computations, wheel base was arrived at by deducting 8 ft. total over-hang front and rear from permissible overall length of unit or combination; tandem axles were considered to be a minimum permissible distance apart: H-20 bridge formula was used in West Virginia. When actual over-hang is less than 8 ft. additional gross weight will be possible.

When followed by the letter "W", the limits shown are maximum possible weights where gross weight is determined by permissible axle weight. These limits are possible only when each axle carries a gross weight equal to the permissible axle limit as shown.

### BRIDGE FORMULAS

Ala.-700 (L plus 40) on any unit or combination.

Ariz.-800 (L plus 40)new vehicles; 850 (L plus 40) vehicles registered before June 9, 1945 until Jan. 1, 1955; 700 (L plus 40) new vehicles with axle spacing 18 feet or less; 750 (L plus 40) vehicles registered before June 9, 1945 until Jan. 1, 1955, axle spacing between 14 and 18 feet.

Ark.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 73,280 lbs. if spacing is 57 ft. or more.

Cal.-Table based on 700(L plus 40) if axles spaced 18 feet or less, 800 (L plus 40), if over 18 ft.

Colo.-800 (L plus 40).

Del.-Gross weights graduated from 36,000 lbs. if axle spacing is 4 ft. to 60,000 lbs. if spacing is 39 ft. or more.

D.C.-Gross weights graduated from 38,000 lbs. if axle spacing is 4 ft. to 65,400 lbs. if spacing is 46 ft. or more.

Ga.-Same as Ala.

Ind.-750 (L plus 40) two or more consecutive axles and any unit or combination.

Iowa-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 60,000 lbs. if spacing is 40 ft. or more.

Kans.-700 (L plus 40) only applies to combinations.

Maine-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 50,000 lbs. if spacing is 27 ft. or more.

Md.-750 (L plus 40) any unit or combination.

Minn.-750 (L plus 40).

Miss.-Gross weights graduated from 28,650 lbs. if axle spacing is 4

*(Continued on page 92)*

# Gross Weights Computed by Formulas

Computation of Gross Weights according to formulas, based on distance (in feet) between first and last axles, for States identified in State Size & Weight Limits chart by Footnore "X". It should be remembered that the figures in each column represent only a mathematical extension and are governed by Legal Overall Length Limits for single units and combinations of particular states. Also, that formula computations are superseded in some instances by specific limits given in the chart.

| "L" (See Note Below) | Minnesota | West Virginia (H-10 Bridges) | Alabama Ariz.[1] Georgia Kansas, N. Car. S. Car., Tenn. Texas | Ariz.[2], Ind., Md., Minn., N. Mex., N.Y., Ore. | West Virginia (H-15 Bridges) | West Virginia (H-20 Bridges) | Arizona Colorado | Arizona [3] | Wyoming | "L" (See Note Below) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 650 (L+40) | 670 (L+40) | 700 (L+40) | 750 (L+40) | 1000 (L+40) | 1330 (L+40) | 800 (L+40) | 850 (L+40) | 850 (L+30) | |
| 10ft. | 32500 lb. | 33500 lb. | 35000 lb. | 37500 lb. | 50000 lb. | 66500 lb. | ..... lb. | ..... lb. | ..... lb. | 10ft. |
| 11 | 33150 | 34170 | 35700 | 38250 | 51000 | 67830 | ..... | ..... | ..... | 11 |
| 12 | 33800 | 34840 | 36400 | 39000 | 52000 | 69160 | ..... | ..... | ..... | 12 |
| 13 | 34450 | 35510 | 37100 | 39750 | 53000 | 70490 | ..... | ..... | ..... | 13 |
| 14 | 35100 | 36180 | 37800 | 40500 | 54000 | 71820 | 43200 | ..... | 37400 | 14 |
| 15 | 35750 | 36850 | 38500 | 41250 | 55000 | 73150 | 44000 | ..... | 38250 | 15 |
| 16 | 36400 | 37520 | 39200 | 42000 | 56000 | 74480 | 44800 | ..... | 39100 | 16 |
| 17 | 37050 | 38190 | 39900 | 42750 | 57000 | 75810 | 45600 | ..... | 39950 | 17 |
| 18 | 37700 | 38860 | 40600 | 43500 | 58000 | 77140 | 46400 | ..... | 40800 | 18 |
| 19 | 38350 | 39530 | 41300 | 44250 | 59000 | 78470 | 47200 | ..... | 41650 | 19 |
| 20 | 39000 | 40200 | 42000 | 45000 | 60000 | 79800 | 48000 | ..... | 42500 | 20 |
| 21 | 39650 | 40870 | 42700 | 45750 | 61000 | 81130 | 48800 | ..... | 43350 | 21 |
| 22 | 40300 | 41540 | 43400 | 46500 | 62000 | 82460 | 49600 | ..... | 44200 | 22 |
| 23 | 40950 | 42210 | 44100 | 47250 | 63000 | 83790 | 50400 | ..... | 45050 | 23 |
| 24 | 41600 | 42880 | 44800 | 48000 | 64000 | 85120 | 51200 | ..... | 45900 | 24 |
| 25 | 42250 | 43550 | 45500 | 48750 | 65000 | 86450 | 52000 | 55250 | 46750 | 25 |
| 26 | 42900 | 44220 | 46200 | 49500 | 66000 | 87780 | 52800 | 56100 | 47600 | 26 |
| 27 | 43550 | 44890 | 46900 | 50250 | 67000 | 89110 | 53600 | 56950 | 48450 | 27 |
| 28 | 44200 | 45560 | 47600 | 51000 | 68000 | 90440 | 54400 | 57800 | 49300 | 28 |
| 29 | 44850 | 46230 | 48300 | 51750 | 69000 | 91770 | 55200 | 58650 | 50150 | 29 |
| 30 | 45500 | 46900 | 49000 | 52500 | 70000 | 93100 | 56000 | 59500 | 51000 | 30 |
| 31 | 46150 | 47570 | 49700 | 53250 | 71000 | 94430 | 56800 | 60350 | 51850 | 31 |
| 32 | 46800 | 48240 | 50400 | 54000 | 72000 | 95760 | 57600 | 61200 | 52700 | 32 |
| 33 | 47450 | 48910 | 51100 | 54750 | 73000 | 97090 | 58400 | 62050 | 53550 | 33 |
| 34 | 48100 | 49580 | 51800 | 55500 | 74000 | 98420 | 59200 | 62900 | 54400 | 34 |
| 35 | 48750 | 50250 | 52500 | 56250 | 75000 | 99750 | 60000 | 63750 | 55250 | 35 |
| 36 | 49400 | 50920 | 53200 | 57000 | 76000 | 101080 | 60800 | 64600 | 56100 | 36 |
| 37 | 50050 | 51590 | 53900 | 57750 | 77000 | 102410 | 61600 | 65450 | 56950 | 37 |
| 38 | 50700 | 52260 | 54600 | 58500 | 78000 | 103740 | 63400 | 66300 | 57800 | 38 |
| 39 | 51350 | 52930 | 55300 | 59250 | 79000 | 105070 | 63200 | 67150 | 58650 | 39 |
| 40 | 52000 | 53300 | 56000 | 60000 | 80000 | 106400 | 64000 | ..... | 59500 | 40 |
| 41 | 52650 | 54270 | 56700 | 60750 | 81000 | 107730 | 64800 | ..... | 60350 | 41 |
| 42 | 53300 | 54940 | 57400 | 61500 | 82000 | 109060 | 65600 | ..... | 61200 | 42 |
| 43 | 53950 | 55610 | 58100 | 62250 | 83000 | 110390 | 66400 | ..... | 62050 | 43 |
| 44 | 54600 | 56280 | 58800 | 63000 | 84000 | 111720 | 67200 | ..... | 62900 | 44 |
| 45 | 55250 | 56950 | 59500 | 63750 | 85000 | 113050 | 68000 | ..... | 63750 | 45 |
| 46 | 55900 | ..... | 60200 | 64500 | ..... | ..... | 68800 | ..... | 64600 | 46 |
| 47 | 56550 | ..... | 60900 | 65250 | ..... | ..... | 69600 | ..... | 65450 | 47 |
| 48 | 57200 | ..... | 61600 | 66000 | ..... | ..... | 70400 | ..... | 66300 | 48 |
| 49 | 57850 | ..... | 62300 | 66750 | ..... | ..... | 71200 | ..... | 67150 | 49 |
| 50 | 58500 | ..... | 63000 | 67500 | ..... | ..... | 72000 | ..... | 68000 | 50 |
| 51 | 59150 | ..... | 63700 | 68250 | ..... | ..... | 72800 | ..... | 68850 | 51 |
| 52 | 59800 | ..... | 64400 | 69000 | ..... | ..... | 73600 | ..... | 69700 | 52 |
| 53 | 60450 | ..... | 65100 | 69750 | ..... | ..... | 74400 | ..... | 70550 | 53 |
| 54 | 61100 | ..... | 65800 | 70500 | ..... | ..... | 75200 | ..... | 71400 | 54 |

"L" - distance in feet between first and last axles of group of axles considered.
(1) - In Arizona this applies (up to 18 feet) to any two or more axles on any vehicle or combination which was first registered on or after June 9, 1945.
(2) - This applies to any vehicle or combination, which was first registered prior to June 9, 1945, having a group of two or more axles, where the distance between the first and last axles of the group is between 14 and 18 ft., inclusive.
(3) - This applies to any vehicle or combination first registered prior to June 9, 1945, where the total wheel base is between 25 and 45 ft., inclusive.

## Restrictions Peculiar to Certain States

*(Continued from page 91)*

ft. to 52,650 lbs. if spacing is 30 ft. or more.

Mont.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 73,280 lbs. if spacing is 57 ft. or more.

Nebr.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 64,650 lbs. if spacing is 45 ft. or more.

Nev.-Gross weights graduated from 30,100 lbs. if axle spacing is 3 ft. to 76,800 lbs. if spacing is 56 ft. or more.

N.Mex.-750 (L plus 40) two or more consecutive axles and any unit or combination.

N.Y.-750 (L plus 40) three or more consecutive axles and any unit or combination.

N.D.-750 (L plus 40) any unit or combination.

Ohio-750 (L plus 40) 3 or more axles.

Okla.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 60,000 lbs. if spacing is 39 ft. or more.

Ore.-Same as Alabama.

S.C.-700 (L plus 40).

S.D.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 64,650 lbs. if spacing is 45 ft. or more.

Tenn.-Same as Alabama

Texas-Same as Alabama

Utah-Gross weights graduated from 33,000 lbs. if axle spacing is 4 ft. to 79,990 lbs. if spacing is 54 ft. or more.

Wash.-Gross weights graduated from 32,000 lbs. if axle spacing is 4 ft. to 72,000 lbs. if spacing is 57 ft. or more.

W.Va.-1330-1000-670 (L plus 40) apply to highways dependent on bridge types thereon.

Wyo.-850 (L plus 30) any unit or combination if axle spacing over 18 ft; 650 (L plus 40) if axle spacing 18 ft. or less.

Vt.-The greatest allowances shown in State Size & Weight Limit chart are permitted on state highways, medium allowances are the maxima permitted on state-aid highways, and the lowest allowances are the maxima permitted on other highways.

Va.-Two-axled vehicles with six-wheels permitted 32,000 lbs. gross.

W.Va.-No unit may carry a load more than 100 per cent greater than its registered capacity if registered for not over two tons; or more than 50 per cent greater if registered for over two but not over four tons; or more than 25 per cent greater if registered for over four tons.

# Stopping Distance

## Depends on

## The Driver, The Truck, The Road

**In making a safe stop the driver must consider his reaction time distance. braking distance. brake efficiency and road surface**

SELECTION & OPERATION

IT TAKES TIME to react to the need for making a stop. It takes TIME to get your foot from the accelerator to the brake pedal. It takes TIME to push the brake pedal down. It takes TIME for the braking effort to be transmitted to the brake drums through the hydraulic or air lines and the braking mechanisms. And after the brakes have been applied, it takes TIME for the vehicle to come to a safe stop.

Some of the above maneuvers may take only a split second, but they all add up to seconds, and seconds mean critical feet in stopping distance. A good driver considers all these factors in negotiating a stop; a poor driver guesses.

All drivers should know their reaction time as well as the time lag in brake application for their own vehicles. They should know the braking distances required at various speeds. With such facts in their possession, more drivers should become safe drivers.

### Stopping Distance

THE stopping distance for any vehicle and driver is made up of reaction time plus the braking distance for the particular speed and road surface conditions.

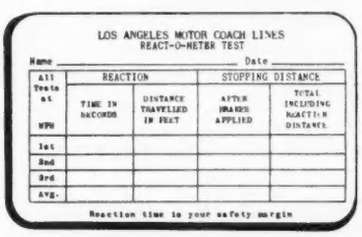
### Reaction Time

REACTION time is that split second it takes to hit the brake pedal after a warning signal has been received. The time it takes to think the situation over before braking, though only a fraction of a second, is usually critical. Reaction time varies with drivers and with any one driver from day to day. Surprisingly enough, most drivers do not know their reaction time--and virtually all overestimate their ability to hit the brake pedal at a danger signal. This can lead to one thing--overconfidence, overspeeding and accidents.

### Reaction Distance

IT REQUIRES .4 second for the average driver to remove his foot from the accelerator and touch the brake pedal--even when he knows what to expect. Under actual driving conditions, when unforseen circumstances necessitate use of the brakes, the average driver reaction time is .75 second. This means that at 20 mph the vehicle will travel 22 feet BEFORE the driver can reach the brake pedal. At a road speed of 60 mph, the vehicle will travel 66 feet before the brakes can be applied. Some drivers require as much as 1.5 seconds to react to a danger signal. At 40 mph such a driver would travel 88 feet before he put his foot on the brake pedal.

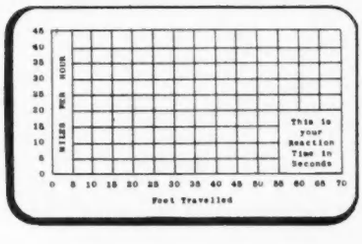
*TURN TO PAGE 94, PLEASE*


LOS ANGELES MOTOR COACH LINES
REACT-O-METER TEST

Name _____ Date _____

| All Tests at MPH | REACTION | | STOPPING DISTANCE | |
|---|---|---|---|---|
| | TIME IN SECONDS | DISTANCE TRAVELED IN FEET | AFTER BRAKES APPLIED | TOTAL INCLUDING REACTION DISTANCE |
| 1st | | | | |
| 2nd | | | | |
| 3rd | | | | |
| AVG. | | | | |

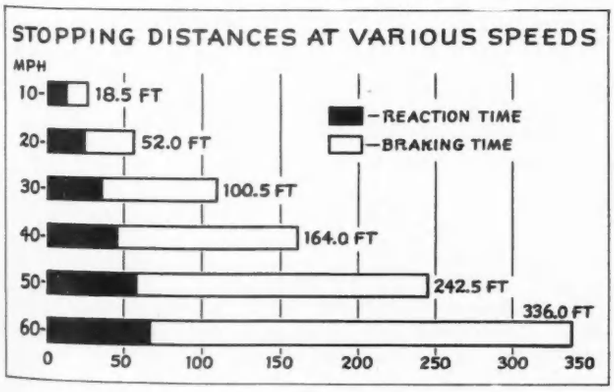
Reaction time is your safety margin




*RIGHT. Reproduction of pocket card given drivers at the Los Angeles Motor Coach Lines. Shows individual reaction time and stopping distance for each of three tests taken by the drivers.*

*BELOW. Chart shows stopping distances at various speeds with brakes at 44.5 per cent efficiency. Reaction time distance is given in black; braking distance in outline view. Reaction time was .75 sec.*

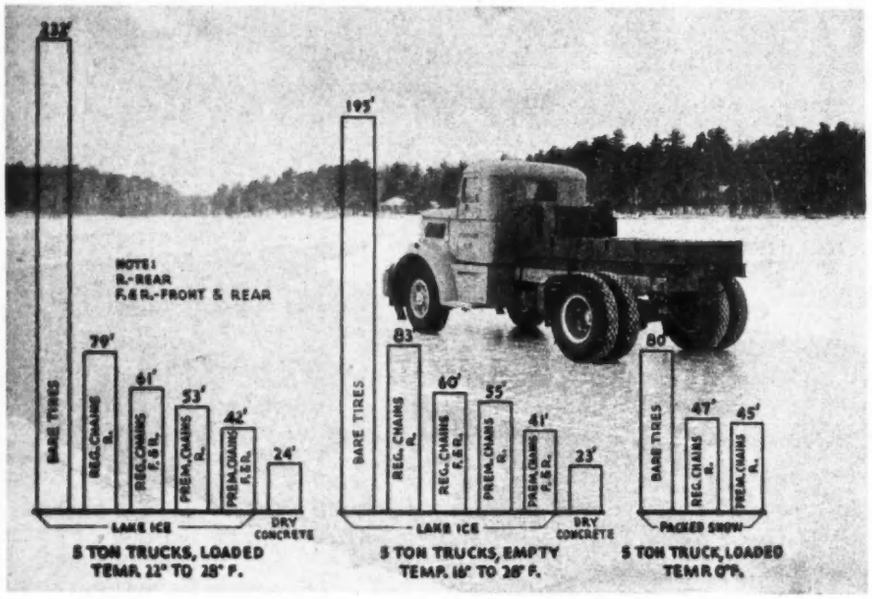
*BELOW, RIGHT. Table shows reaction time distance, braking distance and total stopping distances for speeds from 10 to 60 miles per hour.*




| Miles Per Hour | Equivalent Feet Per Second | Reaction-Time Distance (feet) | Braking Distance (feet) | Total Stopping Distance (feet) |
|---|---|---|---|---|
| 10 | 14.7 | 11.0 | 7.5 | 18.5 |
| 15 | 22.0 | 16.5 | 16.9 | 33.4 |
| 20 | 29.3 | 22.0 | 30.0 | 52 0 |
| 25 | 36.7 | 27.5 | 46.9 | 74.4 |
| 30 | 44.0 | 33.0 | 67.5 | 100.5 |
| 35 | 51.3 | 38.5 | 91.9 | 130.4 |
| 40 | 58.7 | 44.0 | 120.0 | 164.0 |
| 45 | 66.0 | 49.5 | 151.9 | 201.4 |
| 50 | 73.3 | 55.0 | 187.5 | 242.5 |
| 55 | 80.7 | 60.5 | 226.9 | 287.4 |
| 60 | 88.0 | 66.0 | 270.0 | 336.0 |

# Stopping Distance . . .

CONTINUED FROM PAGE 93




*Clintonville tests show stopping distances on glare ice for bare tires, regular chains, premium chains, compared with dry concrete surface at right.*

### Measuring Reaction Time

THERE are two standard ways of measuring reaction time; one considers only the time required to reach the brake pedal upon a signal. In this respect a brake reaction detonator is hung on the bumper and the driver is instructed to stop when the gun is discharged by remote control. The gun, being filled with yellow powder, makes a mark on the pavement at the spot where the driver received warning to step on the brake. Upon application of the brake, another discharge of the detonator marks the spot where the brakes were applied. The distance between the marks on the pavement indicate the reaction distance.

The reaction time is obtained by dividing the reaction distance by the feet per second traveled. For example, if a driver traveling at 20 mph or 29 1/3 ft. per second, stops his vehicle in 22 ft., his reaction time is 22 divided by 29.3 or .75 sec.

In converting miles per hour to feet per second the following formula can be used:

$$\frac{5280 \text{ feet per mile}}{3600 \text{ seconds per hour}} = 1.467.$$

This constant multiplied by any given number of miles per hour will give the number of feet traveled per second. For normal calculations a figure of 1.5 can be used. Thus a vehicle traveling at 30 mph is going 1.5 x 30 or 45 ft. per sec. This figure divided by the distance traveled in feet while the driver is reacting to a warning signal will give his reaction time in seconds.

### Braking Distance

AFTER the brake pedal is depressed and the brakes are applied, the braking distance is encountered. Braking distance will vary with vehicle speed, brake efficiency, road conditions and tire-to-ground contact. Braking distance varies as the square of the speed. Thus, brakes that will stop a vehicle in 30 ft. at 20 mph will require 120 ft. at a speed of 40 mph and 240 ft. at 60 mph.

### Road Conditions

THE driver encounters other than ideal road conditions and must consider these in negotiating a safe stop. Recent tests conducted on ice and packed snow at Clintonville, Wis., have revealed some interesting data which should be in the hands of every driver. (See Chart). Tests showed that ice is extremely variable and unpredictable. While braking distances under these conditions bear a relationship to air temperature, other factors also determine the skid resistance on ice surface. These factors include relative humidity, wind velocity, whether it is sunny or cloudy, whether the ice is fresh shaved or glazed over, as well as others.

### Braking on Ice

AVERAGE braking distance from a speed of 20 mph on ice is about 10 times that of dry concrete. On packed snow braking distances are from three to five times the dry concrete braking distance. Regular tire chains on rear wheels reduced braking distance from 232 to 79 ft. With premium chains on all wheels reduction amounted to 82 per cent. Sanders, according to the test, reduced braking distance on glare ice as much as 30 to 40 per cent,--with the proper type of grit.

### Tire Conditions

A COMPARISON between the braking abilities of natural and synthetic rubber tires showed that natural rubber enabled the vehicle to stop in 84 to 169 ft., while synthetic tires required from 125 to 210 ft. on packed snow at a temperature of 0 deg. braking distance averaged 95 ft. with synthetic tires as against 89 ft. with natural rubber. It was found that the common practice of reducing tire pressures to increase traction will not aid braking ability on ice.

### Skid Resistance

OTHER factors which should be considered by the driver are these:

1. Traction decreases as much as 35 to 40 per cent when concrete becomes wet.

2. At speeds of 35 to 40 mph tires with good treads will permit a 20 per cent reduction of braking distance over smooth tires. At all speeds they produce better traction.

3. Wet brick pavement does not offer the security of either asphalt or concrete. Resistance of wet brick toward skidding is only about 70 per cent that of wet concrete.

4. Traction of smooth tires on steel traffic plates such as are encountered on bridges is little better than that on snow.

5. At speeds of 30 to 40 mph traction on slick, black, shiny roads is lower than that of snow. Good tires are little more effective than smooth ones in these circumstances.

### Driver Instruction

WHAT is to be done with these factors in a move to improve road safety? First, every driver should know his reaction time. Second he should consider it in terms of distance at various road speeds.

The Los Angeles Motor Coach Lines has prepared for each driver a pocket card showing the individual driver's reaction time in seconds, reaction distance in feet at various speeds and braking distances at various speeds. These drivers KNOW their "stopping" ability and can compute the danger zone ahead, thus averting many accidents. This may be one answer to the overconfident or careless driver.

Armour and Co., of Chicago, has developed a handy slide rule indicator showing simple reaction distance, braking distance and stopping distance for speeds from 20 to 45 mph. The individual driver's reaction time is stamped on the chart, and each driver receives a copy. On the back is a chart showing safe driving speeds on wet concrete, wet asphalt, wet brick, wet gravel, packed snow and ice or sleet.

# Specifications for THIRD AXLES and TRAILER SUSPENSIONS

SELECTION & OPERATION

NOTES ON HEADINGS

GENERAL—(a) The capacity of the third axle (Column 2) is not to be confused with the total capacity made possible on the converted vehicle.
COLUMN-3. The price of the unit includes the standard brakes specified in brake column and frame extensions that extend forward under the cab. Tires and brake (air or vacuum) power are not included in price nor is the cost of installation.
COLUMN-4. Weight of third axle unit includes all appurtenances and maximum tires.
COLUMN-15 gives brake lining area of attachment unit only.

ABBREVIATIONS

† Own or Westinghouse optional.
†† 49 in. spacing also available with 49 in. spring.
††† On appliaction.
‡‡ Equipped with gravity spring suspension.
§ This is maximum weight for series; some models up to 400 lb lighter.
(x) Patented 4-wheel chain drive available for all Tructor units.
(y) All Truxmore units equipped with radius rods on driving axle and load distribution may be adjusted within limits shown in cols 6 & 7.
(z) Depends upon installation.

COLUMN 9
Chev - Chevrolet
Shu-Shuler
Tim-Timken

COLUMN 10
D-Driving
Re-Rectangular
Sr-Solid round
Sq-Square
T-Tubular

COLUMN 12
A-Air
B-Bendix
C-Chevrolet
F-Ford
H-Hydraulic
L-Lockheed
M-Mechanical
O-Own
V-Vacuum Power
W-Westinghouse

COLUMN 13
CA-Cast Alloy Iron

| THIRD AXLE MAKE AND MODEL and Truck Model Adapted To | Capacity (Lb.) See Explanatory Notes | Price (f.o.b. Factory) | Weight (Lb.) with Max. Tires, Frame Extension Etc. | Maximum Tire Size | LOAD DISTRIBUTION RANGE (First Figure or combination applies to center axle; second figure to third axle) | | Axle Spacing (with maximum tires) | AXLE DATA Make | AXLE DATA Type | AXLE DATA Size | BRAKES (Standard) Make and Type | BRAKES (Standard) Drum Material | BRAKES (Standard) Brake Diameter and Width | BRAKES (Standard) Lining Area | Number of Points of Frame Support | Spring Size or Number Leaves Added | Spindle Diameter (at Inner bearing) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| **Trailing Axles** | | | | | | | | | | | | | | | | | |
| FABCO | | | | | | | | | | | | | | | | | |
| 220 (Ford) | 11000 | 775 | 2000 | 8.25/20 | 52-48 | ..... | 44 | Tim | T | 4½ | LH | CA | 15x3½ | 192 | 2 | 48x2½ | 2½ |
| 220 (Chevrolet) | 11000 | 775 | 2000 | 8.25/20 | 52-48 | ..... | 44 | Tim | T | 4½ | LH | CA | 15x3½ | 192 | 2 | 48x2½ | 2½ |
| 220 (All other makes) | 11000 | 775 | 2000 | 8.25/20 | 52-48 | ..... | 44 | Tim | T | 4½ | LH | CA | 16x3½ | 205 | 2 | 48x2½ | 2½ |
| 330 (All other makes) | 13000 | 975 | 3000 | 9.00/20 | 52-48 | ..... | 44 | Tim | T | 4½ | LH | CA | 16x3½ | 205 | 2 | 48x3 | 2½ |
| 325 (Ford F-7) | 13000 | 1173 | 3000 | 9.00/20 | 52-48 | ..... | 44 | Tim | T | 4½ | M | CA | 16½x5 | 325 | 2 | 48x3 | 3 |
| 330 (Ford F-8) | 13000 | 1173 | 3000 | 10.00/20 | 52-48 | ..... | 44 | Tim | T | 4½ | M | CA | 16½x5 | 325 | 2 | 48x3 | 3 |
| 5600 (All other makes) | 18000 | 1300 | 3200 | 11.00/20 | 55-45 | ..... | 52 | Tim | T | 5 | M | CA | 16½x7 | 435 | 2 | 56x4 | 3¼ |
| LITTLE GIANT | | | | | | | | | | | | | | | | | |
| 8-ton (For any 1½ ton truck) | 16000 | ††† | 1920 | 8.25/20 | 53-47 | ..... | 42†† | Ow-Shu | Sq | 2½ | Opt | CA | 16x3 | 167 | 4 | 42x2½†† | 2½ |
| 10-ton (For any 2 ton truck) | 18000 | ††† | 2450 | 9.00/20 | 50-50 | ..... | 44†† | Ow-Shu | Sq | 3 | Opt | CA | 16x3½ | 180 | 4 | 44x3†† | 3 |
| 12-ton (For any 2½ to 5 ton truck) | 20000 | ‡‡ | 3000 | 10.00/20 | 50-50 | ..... | 44†† | Ow-Shu | Sq | 3¼ | Opt | CA | 17x4 | 250 | 4 | 44x3½††† | 3 |
| TRAILMOBILE | | | | | | | | | | | | | | | | | |
| CTA-22 (All trucks to 2-ton) | 11000 | ‡‡ | 1626 | 8.25/20 | 58-42 | ..... | 46 | Tim | T | 4½ | Tim | CA | 16½x4 | 290 | 4 | None | 2½ |
| CTA-32 (All trucks 2 to 4½ ton) | 13000 | ‡‡ | 2073 | 9.00/20 | 58-42 | ..... | 48 | Tim | T | 4½ | Tim | CA | 16½x5 | 362 | 4 | None | 2½ |
| CTA-42 (All heavy-duty trucks) | 18000 | ‡‡ | 2263 | 11.00/22 | 58-42 | ..... | 48 | Tim | T | 5 | Tim | CA | 16½x6 | 434 | 4 | None | 3 |
| TRUCKTOR (x) | | | | | | | | | | | | | | | | | |
| HLL (Ford 1½-ton) | 8800 | 690 | 1750 | 7.50/20 | 53-47 | ..... | 45 | Own | Sr | 3 | Lhv | CA | 15x3½ | 196 | 6 | 38½x2½ | 2½ |
| HLL (Chevrolet-1½-ton) | 8800 | 690 | 1750 | 7.50/20 | 53-47 | ..... | 45 | Own | Sr | 3 | Lhv | CA | 16x3 | 219 | 6 | 38½x2½ | 2½ |
| HLL (Light trucks, tires to 8.25X20) | 11000 | 795 | 1895 | 8.25/20 | 53-47 | ..... | 45 | Own | Sr | 3 | Lhv | CA | 16x2¼ | 132 | 6 | 38½x2½ | 2½ |
| HLS (Medium trucks, tires to 9.00 x20. | 14000 | 1225 | 2265 | 9.00/20 | 53-47 | ..... | 46 | Own | Sr | 3¼ | Lhv | CA | 16x3½ | 265 | 6 | 38½x3 | 2¾ |
| HLS (Ford F-7) tires to 9.00x20 | 14000 | 1225 | 2265 | 9.00/20 | 53-47 | ..... | 46 | Own | Sr | 3¼ | Lhv | CA | 16½x3½ | 218 | 6 | 38½x3 | 2¾ |
| HLR (Heavy Truck, tires to 10.00x20 | 16000 | 1680 | 2710 | 10.00/20 | 53-47 | ..... | 48 | Own | Sr | 3½ | Wam | CA | 16½x6 | 251 | 6 | 40x3 | 2¾ |
| HLR (Ford F-8, tires to 10.00x20) | 16000 | 1525 | 2710 | 10.00/20 | 53-47 | ..... | 48 | Own | Sr | 3½ | Lhv | CA | 16x5 | 335 | 6 | 40x3 | 2¾ |
| HR (Heavy-duty, tires to 12-00x20) | 21000 | 1840 | 3177 | 11.00/24 | 53-47 | ..... | 52 | Own | Sr | 4 | Wam | CA | 16½x6 | 251 | 6 | 41½x3 | 3 |
| HR-5 (Extra heavy duty) | 30000 | ‡‡ | 3358 | 12.00/24 | 53-47 | ..... | 53½ | Own | Sr | 5½ | Wam | CA | 17¼x5½ | 380 | 6 | 43½x4 | 3¾ |
| TRUXMORE (Y) | | | | | | | | | | | | | | | | | |
| 280 Series | 12000 | ††† | 2700 | 8.25/20 | 53-47 | 62-38 | 44½-48 | Own | Sq | 2½ | H | CA | 15x3½ | 200 | 4 | •• | 2½ |
| 340 Series | 14000 | ††† | 3100 | 9.00/20 | 52-48 | 60-40 | 47-48 | Own | Sq | 3 | H | CA | 16x3½ | 210 | 4 | •• | 2½ |
| 400 Series | 16000 | ††† | 3600 | 10.00/20 | 51-49 | 60-40 | 47½-48½ | Own | Sq | 3½ | H | CA | 16x5x | 350 | 4 | •• | 3 |
| 450 Series | 18000 | ††† | 3900 | 11.00/20 | 51-49 | 60-40 | 49-50 | Own | Re | 3½x3½ | H | CA | 16x6x | 420 | 4 | •• | 3¼ |
| 50 Series | 20000 | ‡‡ | 4200 | 11.00/24 | 50-50 | 65-35 | 49-53 | Own | Sq | 3½ | H | CA | 17¼x5 | 360 | 4 | •• | 3¾ |
| UTILITY | | | | | | | | | | | | | | | | | |
| 25 (For any 1½-2 ton truck) | 9000 | 505 | 1100 | 8.25/20 | 55-45 | ..... | 41 | Own | Sq | 2½ | BH† | CA | 16x3½ | 230 | 4 | None | 2½ |
| 30 (For any 3½-ton truck) | 13000 | 745 | 1600 | 10.00/20 | 55-45 | 66-33 | 44 | Own | Sq | 3 | BH† | CA | 17x4 | 270 | 4 | None | 2½ |
| 35 (For any 5 ton truck) | 18000 | 835 | 1900 | 11.00/24 | 55-45 | 66-33 | 50 | Own | Sq | 3½ | Omv† | CA | 16x5 | 300 | 4 | None | 3 |
| **Driving Axles** | | | | | | | | | | | | | | | | | |
| FABCO | | | | | | | | | | | | | | | | | |
| 520 Ford | 10500 | 1400 | 2400 | 8.25/20 | 50-50 | ..... | 44 | Tim | D | ..... | FH | CA | 15x3½ | 192 | 2 | 48x2½ | 2½ |
| 520 (Chevrolet with H. D. Axles) | 10500 | 1475 | 2400 | 8.25/20 | 50-50 | ..... | 44 | Chev | D | ..... | CH | CA | 16x3 | 176 | 2 | 48x2½ | 2½ |
| 520 (All other makes) | 10500 | (z) | 2400 | 8.25/20 | 50-50 | ..... | 44 | Match | D | ..... | LH | CA | Match | (z) | 2 | 48x2½ | z |
| 630 (All other makes) | 13000 | (z) | 3000 | 10.00/20 | 50-50 | ..... | 48 | Match | D | ..... | LH | CA | Match | (z) | 2 | 53x3 | z |
| 625 (Ford F-7) | 14000 | (z) | 3200 | 10.00/20 | 50-50 | ..... | 44 | Ford | D | ..... | FH | CA | 16½x3½ | 350 | 2 | 48x3 | 3 |
| THORNTON DRIVE | | | | | | | | | | | | | | | | | |
| A1 Bogie (Ford 1½-ton) | 11250 | ..... | 6500 | 8.25/20 | 50-50 | ..... | 42½ | Ford | D | 3½ | VH | CA | 15x3½ | 198 | 4 | 42½x2½ | 2½ |
| A1A Bogie (Ford 1½-ton) | 11250 | ..... | 6500 | 9.00/20 | 50-50 | ..... | 48 | Ford | D | 3½ | VH | CA | 15x3½ | 198 | 4 | 47½x2½ | 2½ |
| A2 Bogie (Various) | 12750 | ..... | ..... | 8.25/20 | 50-50 | ..... | 42½ | Eaton | D | 4½ | VH | CA | 15x3½ | 198 | 4 | 42½x2½ | 2½ |
| A2A Bogie (Various) | 12750 | ..... | ..... | 9.00/20 | 50-50 | ..... | 48 | Eaton | D | 4½ | VH | CA | 15x3½ | 198 | 4 | 47½x2½ | 2½ |
| A3 Bogie (Chevrolet 1½-ton) | 11250 | ..... | 6330 | 8.25/20 | 50-50 | ..... | 44½ | Chev | D | 3½ | VH | CA | 18x3 | 218 | 4 | 44½x2½ | 2½ |
| A3A Bogie (Chevrolet 2-ton) | 12500 | ..... | 7230 | 8.25/20 | 50-50 | ..... | 44½ | Chev | D | 4 | VH | CA | 18x3 | 218 | 4 | 44½x2½ | 2½ |
| A6 Bogie (Various) | 14250 | ..... | ..... | 9.00/20 | 50-50 | ..... | 47½ | Eaton | D | 3½x4½ | VH | CA | 16½x3½ | 207 | 4 | 47½x2½ | 2½ |
| A9 Bogie (Dodge 1½ & 2-ton) | 12750 | ..... | 7020 | 8.25/20 | 50-50 | ..... | 46½ | Eaton | D | 4½ | VH | CA | 15x3½ | 198 | 4 | 46½x2½ | 2½ |
| A14 Bogie (Ford 3-ton) | 16500 | ..... | 9000 | 10-00/20 | 50-50 | ..... | 48 | Eaton | D | 5⅝ | VH | CA | 16x5 | 350 | 4 | 47½x2½ | 3¼ |

(Continued on Next Page)

# Specifications for THIRD AXLES Continued from page 95

| SUSPENSION UNIT MAKE AND MODEL | Capacity (Lb.) See Explanatory Notes | Price (f.o.b. Factory) | Weight (Lb.) with Max. Tires, Frame Extension Etc. | Maximum Tire Size | LOAD DISTRIBUTION RANGE (First Figure or combination applies to center axle; second figure to third axle) | | Axle Spacing (with maximum tires) | AXLE DATA | | | BRAKES (Standard) | | | | No. of Points of Frame | Spring Size or Number Leaves Added | Spindle Diameter (at inner bearing) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Make | Type | Size | Make and Type | Drum Material | Brake Diameter and Width | Lining Area | | | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| **Trailer Suspensions** | | | | | | | | | | | | | | | | | |
| HOOBLER (Note 1) | 36000 | ‡‡ | 6300 | 11.00/20 | 50-50 | ..... | 108¼ | Var | Var | Var | Var | Var | Var | Var | 1 | 42x4 | Var |
| LITTLE GIANT (Tandem conversions for single axle trailers) | 15000 | ‡‡‡ | ..... | 7.00/20 | 50-50 | ..... | 42 | Shu | Sq | 2½ | AH | CA | 15x3½ | ..... | 2 | ..... | 2½ |
| | 20000 | ‡‡‡ | ..... | 7.00/20 | 50-50 | ..... | 44 | Shu | Sq | 3 | AH | CA | 16x3½ | ..... | 2 | ..... | 3 |
| | 25000 | ‡‡‡ | ..... | 7.00/20 | 50-50 | ..... | 44 | Shu | Sq | 3½ | AH | CA | 16x5 | ..... | 2 | ..... | 3½ |
| TRUCKTOR | | | | | | | | | | | | | | | | | |
| T-11 (Single) | 11000 | 550 | 2000 | 8.25/20 | ..... | ..... | ..... | Own | Sr | 3 | Lhv | CA | 16x3½ | 236 | 4 | 56" | .... |
| T-14 (Single) | 14000 | 580 | 2300 | 9.00/20 | ..... | ..... | ..... | Own | Sr | 3½ | Lhv | CA | 17½x4 | 251 | 4 | 56" | .... |
| T-16 (Single) | 16000 | 605 | 2600 | 10.00/20 | ..... | ..... | ..... | Tim | T | 5 | MA | CA | 16½x6 | 438 | 4 | 56" | .... |
| T-18 (Single) | 18000 | 635 | 2750 | 11.00/20 | ..... | ..... | ..... | Tim | T | 5 | MA | CA | 16½x7 | 512 | 4 | 56" | .... |
| T-20 (Single) | 20000 | 745 | 2900 | 11.00/22 | ..... | ..... | ..... | Tim | T | 5½ | MA | CA | 18x7 | 450 | 4 | 56" | .... |
| T-25 (Single) | 25000 | 910 | 3750 | 12.00/24 | ..... | ..... | ..... | Ow-Tim | Opt | 6 | MA | CA | 18x7 | 450 | 4 | 56" | .... |
| TT-14 (Tandem) | 28000 | 1150 | 4800 | 9.00/20 | 50-50 | ..... | 48" | Own | Sr | 3 | MA | CA | 17½x4 | 251 | 6 | 45½" | .... |
| TT-16 (Tandem) | 32000 | 1225 | 5000 | 10.00/20 | 50-50 | ..... | 50" | Tim | T | 5 | MA | CA | 16½x6 | 438 | 6 | 46½" | .... |
| TT-18 (Tandem) | 36000 | 1400 | 5200 | 11.00/20 | 50-50 | ..... | 50" | Tim | T | 5 | MA | CA | 16½x7 | 512 | 6 | 46½" | .... |
| TRUXMORE (Tandem conversions) | | | | | | | | | | | | | | | | | |
| 280 Series | 12000 | ‡‡ | 2700 | 8.25/20 | 53-47 | 62-38 | 44½-48 | Own | Sq | 2½ | H | CA | 15x3½ | 200 | 4 | .. | 2½ |
| 340 Series | 14000 | ‡‡ | 3100 | 9.00/20 | 52-48 | 60-40 | 47-48 | Own | Sq | 3 | H | CA | 16x3½ | 210 | 4 | .. | 2½ |
| 400 Series | 16000 | ‡‡ | 3600 | 10.00/20 | 51-49 | 60-40 | 47½-48½ | Own | Sq | 3½ | H | CA | 16x5x | 350 | 4 | .. | 3 |
| 450 Series | 18000 | ‡‡ | 3900 | 11.00/20 | 51-49 | 60-40 | 49-50 | Own | Re | 3½x3½ | H | CA | 16x6x | 420 | 4 | .. | 3 |
| 50 Series | 20000 | ‡‡ | 4200 | 11.00/24 | 50-50 | 65-35 | 49-53 | Own | Sq | 3½ | H | CA | 17½x5 | 360 | 4 | .. | 3 |
| UTILITY | | | | | | | | | | | | | | | | | |
| SWX-10 (Tandem) | 30000 | ‡‡ | ..... | 10.00/22 | 50-50 | ..... | 50 | Own | Re | ..... | ..... | CA | 6in | 210 | 6 | 10-3in | .... |
| SWX-12 (Tandem) | 36000 | ‡‡ | ..... | 11.00/22 | 50-50 | ..... | 50 | Own | Re | ..... | .... | CA | 10in | 330 | 6 | 11-3in | .... |
| SWX-15 (Tandem) | 44000 | ‡‡ | ..... | 12.00/24 | 50-50 | ..... | 52 | Own | Re | ..... | ..... | CA | 10in | 330 | 6 | 12-3in | .... |

Note 1 - Standard tandem unit using any standard trailer axle.

# AASHO Standards for Motor Vehicles

## American Association of State Highway Officials submits revised recommendations relating to width, height, length, speed and permissible loads

uniform standards governing the maximum dimensions, weights and speeds of motor vehicles, proposed by the Highway Transport Committee of the American Association of State Highway Officials, have been adopted by a letter ballot of the member State highway departments, with a recommendation that they be incorporated in the motor vehicle laws of all States.

The Association recommends that the standards be considered for adoption by all States in order to promote efficiency in the interstate operation of motor vehicles, increase the safety of highway transportation and establish a basis for regulation of the many relationships between the dimensions and weights of motor vehicles and the strengths and capacities of existing highways.

The standards, based upon years of research by State highway departments, and the Public Roads Administration, are advocated in lieu of recommendations previously made by the American Association of State Highway Officials on November 17, 1932, and of modified recommendations applicable during the war emergency period, which were adopted May 27, 1942.

The recommendations, as finally adopted, are as follows:

1. Width: No vehicle unladen or with load, shall have a total outside width in excess of 96 in. (Note: It is recognized that certain conditions inherent in the design of vehicles suggest the desirability of 102 in. as a standard of maximum width, but the existence of numerous bridges and a large mileage of highways too narrow for the safe accommodation of vehicles of such width precludes the present adoption of the higher standard of width. The State highway departments and Public Roads Administration are urged to give serious consideration to the desirability of eventual provision for the accommodation of vehicles 102 in. in width in planning the reconstruction of Federal-aid and State highways.)

2. Height: No vehicle, unladen or with load, shall exceed a height of 12 ft., 6 in.

3. Length: (a) No single truck, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 35 ft.

(b) No single bus, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 40 ft., provided that a bus in excess of 35 ft. in overall length shall have not less than 3 axles.

(c) No combination of truck-tractor and semi-trailer, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 50 ft.

(d) No other combination of vehicles shall consist of more than two units, and no such combination of vehicles, unladen or with load, shall have an overall length, inclusive of front and rear bumpers, in excess of 60 ft.

4. Speed: (a) Minimum speed. No motor vehicle shall be unnecessarily driven at such slow speed as to impede or block the normal and reasonable movement of traffic. Exception to this requirement shall be recognized when reduced speed is necessary for safe operation or when a vehicle or combination of vehicles is necessarily or in compliance with law or police direction proceeding at reduced speed.

(b) Maximum speed: No truck shall be operated at a speed greater than 45 mph. Passenger vehicles may be operated at such speeds as shall be consistent at all times with safety and the proper use of roads.

(c) Vehicles equipped with solid rubber or cushion tires shall be operated at a speed not in excess of 10 mph.

5. Permissible Loads: (a) No axle shall carry a load in excess of 18,000 lb. (Note: An axle load shall be defined as the total load transmitted to the road by all wheels whose centers may be included between two parallel transverse vertical planes 40 in. apart, extending across the full width of the vehicle.)

(b) No group of axles shall carry a load in pounds in excess of the value given in the following table corresponding to the distance in feet (col.a.) between the extreme axles of the group, measured longitudinally to the nearest foot:

| (a) | (b) | (a) | (b) | (a) | (b) | (a) | (b) |
|---|---|---|---|---|---|---|---|
| 4 | 32,000 | 17 | 41,160 | 31 | 53,490 | 44 | 63,890 |
| 5 | 32,000 | 18 | 42,080 | 32 | 54,330 | 45 | 64,650 |
| 6 | 32,000 | 19 | 42,990 | 33 | 55,160 | 46 | 65,400 |
| 7 | 32,000 | 20 | 43,900 | 34 | 56,980 | 47 | 66,150 |
| 8 | 32,610 | 21 | 44,800 | 35 | 56,800 | 48 | 66,890 |
| 9 | 33,580 | 22 | 45,700 | 36 | 57,610 | 49 | 67,620 |
| 10 | 34,550 | 23 | 46,590 | 37 | 58,420 | 50 | 68,350 |
| 11 | 35,510 | 24 | 47,470 | 38 | 59,220 | 51 | 69,070 |
| 12 | 36,470 | 25 | 48,350 | 39 | 60,010 | 52 | 69,790 |
| 13 | 37,420 | 26 | 49,220 | 40 | 60,800 | 53 | 70,500 |
| 14 | 38,360 | 27 | 50,090 | 41 | 61,580 | 54 | 71,200 |
| 15 | 39,300 | 28 | 50,950 | 42 | 62,360 | 55 | 71,900 |
| 16 | 40,230 | 29 | 51,800 | 43 | 63,130 | 56 | 72,590 |
| | | 30 | 52,650 | | | 57 | 73,280 |

(c) The maximum axle and axle-group loads recommended above are subject to reasonable reduction in the discretion of the appropriate highway authorities during periods when road subgrades have been weakened by water saturation or other cause.

(d) The operation of vehicles or combinations of vehicles having dimensions or weights in excess of the maximum limits herein recommended shall be permitted only if authorized by special certificate issued by an appropriate State authority.

# AUTOMOTIVE SAFETY EQUIPMENT

## As Specifically Mentioned In I.C.C. Safety Rules and Reg

**REQUIRED**

**--TO BE MOUNTED ON VEHICLES--**

| JURISDICTION EXERCISING CONTROL OVER USE OF EQUIPMENT LISTED. | HEAD LAMPS | | | TAIL LAMPS | | | STOP LAMPS | | | REAR REFLECTORS | | | CLEARANCE LAMPS | | | | SIDE-MARKER LAMPS | | | | IDENTIFICATION LAMPS | | | | DIRECTION SIGNALS | | | | SIDE REFLECTORS | | | REAR VIEW MIRROR | WINDSHIELD WIPERS | | DEFROSTERS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR FRONT | COLOR REAR | MUST BE APPROVED | NUMBER | COLOR FRONT | COLOR REAR | MUST BE APPROVED | NUMBER (Sets) | COLOR FRONT | COLOR REAR | MUST BE APPROVED | NUMBER | COLOR FRONT | COLOR REAR | MUST BE APPROVED | NUMBER | COLOR FRONT | COLOR REAR | MUST BE APPROVED | NUMBER | MUST BE APPROVED | NUMBER | MUST BE APPROVED | NUMBER | MUST BE APPROVED |
| I.C.C. | 2 | NS | ### | 1 | R | ### | 1[e] | A/R | ### | 2[e] | R | ### | 2/4 | A | R | ### | 2/4 | A | R | ### | NR | | | | NR | | | | 2/4 | A | R | ### | 1 | ### | 1 | ### | ## | ### |
| ALA. | 2 | NS | Y | 1[d] | R | Y | 1 | R | Y | NR | | | 2 | W | R | N | NR | | | | NR | | | | NS | | | Y | NR | | | | 1 | N | NR | | NR | |
| ARIZ. | 2 | NS[a] | Y | 1 | R | Y | 1 | R | Y | NR | | | 2 | W | R | Y | NR | | | | NR | | | | 4 | A | A | Y | NR | | | | 1 | N | 1 | N | 1[##] | N |
| ARK. | 2 | NS[a] | Y | 1[c] | R | Y | NR | | | 1[e] | R | Y | 2 | G | R | N | 4[m] | G | R | N | 2 | G | R | N | 4 | R | R | Y | NR | | | | 1 | N | 1 | N | NR | |
| CALIF. | 2 | W | Y | 1[c] | R | Y | 1 | R | Y | 2[k] | R | Y | 4 | A | A[v] | Y | NR | | | | NR | | | | 4 | Ye A | Ye A | Y | NR | | | | 1 | N | 1 | N | NR | |
| COLO. | 2 | W | Y | 1[c] | R | Y | 1 | R | Y | 2[k] | R | Y | 4 | A | R | Y | 4 | A | R | Y | NR | | | | 4 | Ye R | Ye R | Y | 4 | A | R | Y | 1 | N | 1 | N | NR | |
| CONN. | 2 | W | Y | 1[c] | R[ff] | N | 1 | R | N | 1[e] 2 | AR W | Y | 4[dd] | A/W | A/R W | N | NR | | | | 2 | | dd NR | N | 4 | A Ye | A Ye | Y | NR | | | | 1 | N | 1 | N | 1[##] | N |
| DEL. | 2 | W | Y | 1[d] | R | Y | NR | | | 2 | R | Y | 4 | A | R | Y | 1 | t | -- | Y | NR | | | | 4 | A | A | Y | NR | | | | 1 | N | 1 | N | NR | |
| D. C. | 2 | NS[a] | N | 1[d] | R | N | NR | | | 2 | R | Y | 4 | A | R | Y | 4 | A | R | Y | NR | | | | 4 | A | A | Y | 4 | A | R | Y | 1/2 | N | 2 | N | NR | |
| FLA. | 2 | NS | Y | 1[c] | R | N | 1[e] | A/R Ye | N | 2 | R | N | 2[o] 4 | A | R | N | 2/4[o] | A | R | N | NR | | | | NR | | | | 4 | A | R | N | 1 | N | 1 | N | NR | |
| GA. | 2 | NS[a] | N | 1[c] | R | N | 1 | R | N | 2 | R | N | 2/4[o] | A | R | N | 2/4[o] | A | R | N | NR | | | | NR | | | | 4 | A | R | N | 1 | N | 1 | N | 1[##] | N |
| IDA. | 2 | W | Y | 1[d] | R | Y | 1[e] | R | Y | 2[g] | R | Y | 2/4[o] | A | R | Y | 2/4[o] | A | R | Y | NR | | | | NS | A | A/R | Y | 4 | A | R | Y | 1 | N | 2 | N | NR | |
| ILL. | 2 | AW Ye | N | 1 | R | N | 1 | Ye/R | N | 1[j] | R | N | NS | NS | NS | N | NS | NS | NS | N | 2 | G | R | N | NS | A | A/R | Y | 4 | A | A | Y | 1 | N | 1 | N | NR | |
| IND. | 2 | W | N | 1[c] | R | N | 1[f] 1[e] | R | N | 2[l] | R | N | 2/4 | A | R | N | 2/4 | A | R | N | NR | | | | 4[f] | A | A | Y | 2/4 | A | R | N | 1 | N | 1 | N | NR | |
| IOWA | 2 | NS[a] | Y | 1[c] | R | Y | 1 | Ye/R | Y | 2[k] | R | Y | 2/4 | AR[eA] W | R | Y | 2/4 | A Ye W | R | Y | 2 | A/Ye W | R | Y | NR | | | | 2/4 | A W | D Ye | R | Y | 1 | N | 1 | N | NR | |
| KAN. | 2 | NS[a] | Y | 1[c] | R | Y | 1 | Ye/R | Y | 1[e] | R | Y | 2 | A | R | Y | 4[m] | A | R | Y | 2 | A | R | Y | NR | | | | NR | | | | 1 | Y | 1 | N | 2[##] | N |
| Ky | 2 | W | N | 1[n] | R | N | 1 | R | N | 1[e] | | | 2/4 | G/W | R | N | 4 | A | R | N | 1 | G | R | N | NR | | | | 4 | A | R | N | 1 | N | 1 | N | 1[##] | N |
| LA. | 2 | NS[a] | Y | 1[d] | R | Y | 1 | R | Y | NR | | | 2 | A | R | Y | 2 | A | NR | Y | NR | | | | 4 | A | A | Y | NR | | | | 1 | N | NR | | NR | |
| ME. | 2 | NS | Y | 1[c] | R | Y | NR | | | 1[e] | R | N | 2[m] 3 | A/G | R | N | NR | | | | 1 | W | NR | N | NR | | | | NR | | | | 1 | N | 1 | N | 1[##] | N |
| MD. | 2 | NS[a] | Y | 1[c] | R | Y | 1 | A/R | Y | 1[e] | R | Y | 4[m] | A | R | N | 4[o] m | A | R | N | NR | | | | 4 | A | A | Y | NR | | | | 1 | N | 1 | N | 1[##] | Y |
| MASS. | 2 | AW Ye | Y | 1 | R | Y | NR | | | 1 | R | Y | 1 | G | NR | N | NR | | | | NR | | | | NR | | | | NR | | | | 1 | N | 1 | N | NR | |
| MICH. | 2 | W | Y | 1[c] | R | N | 1 | A/R | N | 2 | R | N | 4[o] | A | R | N | 4[o] | A | R | N | NR | | | | NR | | | | 2/4 | A | R | N | 1 | N | 1 | N | NR | |
| MINN. | 2 | W | Y | 1[c] | R | Y | 1 | Ye/R | Y | 1[e] | R | Y | 4[ii] | A/W | R | Y | 4[ii] | A/W | R | Y | NR | | | | 4 | Ye | Ye R | Y | NR | | | | 1 | N | 1 | N | NR | |
| MISS. | 2 | NS | Y | 1[c] | R | Y | 1 | R | Y | 1[e] | R | Y | 2 | G | R | N | 4 | G | R | N | 2 | G | R | N | 4 | A | A | Y | NR | | | | 1 | N | 1 | N | NR | |
| MO. | 2 | W | Y | 1[c] | R | N | NR | | | 2/4[p] | A | Y | 2/4 | A | R | N | 2/4 | A | R | N | NR | | | | NR | | | | NR | | | | 1 | N | 1 | N | 1[##] | N |
| MONT. | 2 | W | Y | 1[d] | R | N | NR | | | NR | | | 4[m] | A Ye | R | N | NR | | | | NR | | | | NR | | | | NR | | | | 1 | N | NR | | NR | |
| NEBR. | 2 | NS[b] | Y | 1 | R | Y | 1 | R | Y | NR | | | 2[m] | A/G | R | N | NR | | | | NR | | | | NR | | | | NR[m] | | | | 1 | N | 1 | N | NR | |
| NEV. | 2 | NS | N | 1 | R | N | 1 | R | N | 2 | R | N | 2/4 | A | R | N | 2/4 | A | R | N | NR | | | | NR | | | | 4 | A | R | N | 1 | N | 1 | N | 1[##] | N |
| N. H. | 2 | NS | Y | 1[d] | R | Y | NR | | | 2 | R | Y | 4[s] | A | R | Y | 2[s] | A | R | Y | NR | | | | NR | | | | 4 | A | R | Y | 1 | N | 1 | N | 1 | N |
| N. J. | 2 | AW Ye | Y | 1[c] | R | Y | 1 | R | Y | 1/2[k] | R | Y | NR | | | | NR | | | | NR | | | | 4 | A/ Ye | A Ye | Y | NR | | | | 1 | N | 1 | N | NR | |
| N. M. | 2 | NS | Y | 1[d] | R | Y | 1[e] | A/R Ye | Y | 1/2[k] | R | Y | 2/4 | A | R | Y | 4 | A | R | Y | NR | | | | 4 | A | A | Y | 4 | A | R | Y | 1 | N | 1 | N | NR | |
| N. Y. | 2 | Ye W | Y | 1[h] | R | Y | 1 | R | Y | 1[k] 1/2 | R | Y | NR | | | | NR | | | | NR | | | | 4 | A/ Ye | A/ Ye | Y | NR | | | | 1 | N | NR | | NR | |
| N. C. | 2 | NS | Y | 1[d] | R | Y | 1 | R | Y | 1 | R | Y | 4 | A | R | Y | NR | | | | NR | | | | NS | NS | | Y | NR | | | | 1 | N | 1 | N | NR | |
| N. D. | 2 | NS[b] | Y | 1 | R | Y | NR | | | NR | | | 2 | W | R | Y | NR | | | | NR | | | | NR | | | | NR | | | | 1 | N | 1 | N | NR | |
| OHIO | 2 | W | N | 1[c] | R | N | 1 | A/R Ye | N | 2[L] | R | N | 4 | A | R | N | 4 | A | R | N | NR | | | | NR | | | | 4 | A | R | N | 1 | N | 1 | N | NR | |
| OKLA. | 2 | W | N | 1 | R | N | 1 | NS | N | 2 | NS | N | 4 | A/G W | R | N | 4 | A/G W | R | N | NR | | | | NR | | | | 4 | A/W Ye | R | N | 1 | N | 2 | N | NR | |
| ORE. | 2 | NS[a] | Y | 1[c] | R | Y | 1 | A/R | Y | 2[k] | R | Y | 2/4 | A | R | Y | 2/4 | A | R | Y | NR | | | | 2/4 | A | R | Y | 2/4 | A | R | Y | 1 | N | 1 | N | NR | |
| PENN. | 2 | NS | Y | 1[c] | R | Y | NR | | | 1 | R | Y | 2[m] | A | R | N | 4[m] | A | R | N | NR | | | | 2/4 | A Ye | A Ye | Y | NR | | | | 1 | N | 1 | N | NR | |
| R. I. | 2 | A/ W | Y | 1[d] | R | N | NR | | | 1 | R | Y | NR | | | | NR | | | | NR | | | | 4 | A/ Ye | A/ Ye | Y | 1 | A/ Ye | NR | Y | 1 | N | 1[ee] | N | 1[##] | N |
| S. C. | 2 | W | N | 1[c] | R | N | 1 | A/R | Y | 1[e] | R | N | 2[o] 4 | A | R | N | 2/4[o] | A | R | N | 2 | A | R | N | 4 | A | A | N | 3/4 | A | R | N | 1 | N | 1 | N | 1[##] | N |
| S. D. | 2 | NS | Y | 1[d] | R | Y | 1 | R | Y | 1[e] | R | N | 2 | W | R | Y | NR | | | | 2 | G | R | Y | 4 | A | A | Y | NR | | | | 1 | N | NR | | NR | |
| TENN. | 2 | NS | Y | 1 | R | Y | 1 | A/R | Y | 2 | R | N | 4 | A | R | Y | 4 | A | R | Y | NR | | | | NR | | | | 4 | A | R | Y | 1 | N | NR | | NR | |
| TEX. | 2 | W | Y | 1[d] | R | N | 1 | Ye R | Y | 2 | R | Y | 2/4[o] | W | Ye R | Y | 2/4[o] | A | R | Y | NR | | | | 4 | A | A | Y | 2/4 | A | R | Y | 1 | N | NR | | NR | |
| UTAH | 2 | NS[a] | Y | 1[c] | R | Y | 1[e] | A/R Ye | Y | 2[b] | R | Y | 4 | A | R | N | 4 | A | R | N | NR | | | | 4 | A | A | Y | 4 | A | R | Y | 1 | N | 1 | N | NR | |
| VT. | 2 | NS | Y | 1[d] | R | Y | 1 | R | Y | NR | | | 1 | G | R | Y | NR | | | | NR | | | | 2/4 | NS | NS | Y | NR | | | | 1 | N | 1 | N | NR | |
| VA. | 2 | W | Y | 1[c] | R | Y | 1 | R | Y | NR | | | 4 | A | G | Y | NR | | | | 1[y] | W | NR | Y | 4 | A | A/R | Y | NR | | | | 1 | Y | 1[cc] | Y | NR | |
| WASH. | 2 | NS | Y | 2[c] | R | Y | 1[e] | R | Y | 2[e] | R | Y | 4 | Ye | R | Y | 2/4[o] | A | R | Y | NR | | | | 4 | Ye | Ye | Y | 4[ss] | A | R | Y | 1 | N | 2 | N | NR | |
| W. VA. | 2 | NS | N | 1[c] | R | N | 1 | R | N | 2[g] | R | N | 2/4 | A | R | N | 1 | W | NR | N | 1[y] | W | NR | N | NR | | | | 4 | A | R | N | 1 | N | 1 | N | 1[##] | N |
| WISC. | 2 | W | Y | 1[L] 1[m] | A/R | Y | 1[L] 1[m] | R | Y | 2 | R | Y | 2/4 | A | R | Y | 4 | A | R | Y | NR | | | | NR | | | | 4 | A | R | Y | 1 | N | 1 | N | NR | |
| WYOM. | 2 | NS[a] | Y | 1[d] | R | Y | 1 | R | Y | 1 | R | Y | 2[m] | G | R | Y | NR | | | | NR | | | | 4 | A Ye | A Ye | Y | NR | | | | 1 | N | 1 | N | NR | |

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# NT REQUIRED OR PERMITTED

## Regulations; State Motor Vehicle Laws and Official Rulings

Revised to February 1, 1948

**-T-O B-E C-A-R-R-I-E-D I-N V-E-H-I-C-L-E-S-** → **P E R M I T T E D** **-T-O B-E M-O-U-N-T-E-D O-N V-E-H-I-C-L-E-S**

| DE-FROST-ERS | | FIRE EXTIN-GUISH-ERS. | | LIQUID BURNING FLARES | | ELECTRIC FLARES | | | REFLECTOR FLARES | | | FUSEES | | | RED CLOTH FLAGS | LITE OR FLAG ON PROJECT-ING LOAD | | SIDE-COWL-FENDER | | | RUNNING-BOARD-COURTESY | | | AUXILIARY DRIVING LAMPS | | | FOG LAMPS | | | SPOT LAMPS | | | BACK-UP LAMPS | | | DRIVING LAMPS PERMITTED LIT AT ONE TIME. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | MUST BE APPROVED | NUMBER | MUST BE APPROVED | NUMBER | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | BURNING TIME (Min.) | NUMBER | SIZE (Dia. or Square) | LITE OR LANTERN FLAG SIZE (Sq. In.) | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | NUMBER | COLOR | MUST BE APPROVED | |
| ## | ### | 1 | ### | 3 | ### | 3 | R | ### | 3 | R | ### | 3 | WS | 15 | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS | NS | ### | 4 |
| NR | ---- | NR | ---- | 2 | N | NR | ------ | | 2 | R | Y | 2 | R | NS | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS | N | XX | ------ | | 2 | NS | N | NSM | ------ | | NS |
| ## 1 | N | 1 | N | 3 | N | 3 | R | N | 3 | R | N | 3 | R | 15 | 3 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS[a] | Y | XX | ------ | | 2 | NS[a] | Y | NSM | ------ | | NS |
| NR | ---- | 2 | N | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | 1 | 16 | 2 | A/W | N | 2 | A/W | N | 3 | NS[a] | Y | XX | ------ | | 1 | NS[a] | Y | 1 | NS[a] | N | 4 |
| NR | ---- | 1 | Y | 2 | N | 2 | R | N | 22 | R | Y | NR | ------ | | NR | --- | 2 | 16 | 2 | A/W | N | NS | A/W | N | 2 | A/W | Y | 2 | A/W | Y | 2 | NS | Y | 1 | A/W | N | 4 |
| NR | ---- | 2 | N | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 20 | 3 | NS | 1 | 16 | 2 | A/W | Y | 2 | A/W | Y | 3 | NS | Y | XX | ------ | | 1 | NS | Y | 1 | NS | Y | 4 |
| ## 1 | N | 1 | N | 3[p] | Y | 3[n] | R | N | 3[n] | R | N | 3[n] | R | NS | NR | --- | 1 | NS | NSM | ------ | | NSM | ------ | | 2 | A/W | N | XX | ------ | | 1 | A/W | N | NSM | ------ | | 4 |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | NR | ------ | | NR | ------ | | NR | --- | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | W | Y | 2 | A | Y | 1 | W | Y | NSM | ------ | | 4 |
| NR | ---- | NR | ---- | NR | | NR | ------ | | NR | ------ | | NR | ------ | | NR | --- | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | A/W | Y | 2 | A/W | Y | 1 | A/W | N | NSM | ------ | | 2 |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | NR | ------ | | 3 | R | 15 | 2 | 12 | 1 | 16 | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| ## 1 | N | 1 | Y | 3 | N | 3 | R | N | 3 | R | N | 3 | R | 15 | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | NSM | ------ | | NDM | ------ | | NSM | ------ | | NS | NS | N | NS |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | NR | NR | --- | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS[a] | Y | 1 | A | Y | 1 | NS[a] | Y | NSM | ------ | | 2 |
| NR | ---- | 2 | N | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | 1 | 16 | 2 | A/W | N | 2 | A/W | N | 3 | NS | N | XX | ------ | | 1 | NS | N | 1 | NS | N | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | NR | ------ | | 3 | R | 15 | 2 | 12 | 1 | 16 | 2 | NS | N | 2 | A/W | N | 3 | NS | N | XX | ------ | | 1 | W | N | 1 | W | N | 4 |
| NR | ---- | 2 | N | 3 | Y | 3 | R | Y | 3 | R | Y | 1 | NS | NS | 3 | NS | 1 | 16 | 2 | A/W | N | 2 | A/W | N | 3 | NS[a] | N | XX | ------ | | 1 | NS[a] | N | 1 | NS | N | 4 |
| ## 2 | N | 2 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 15 | 3 | 15 | 1 | 16 | 2 | A/W | Y | 2 | A/W | N | 3 | A/W | Y | XX | ------ | | 1 | W | N | 1 | W | Y | 4 |
| ## 1 | N | 1 | Y | 3 | N | 3 | R | N | 3 | R | N | 3 | R | 15 | 3 | 12 | 1 | NS | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| NR | ---- | 1 | N | 3 | Y | 3 | R | Y | NSM | ------ | | NR | ------ | | 3 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS[a] | Y | XX | ------ | | Prohibited | | | NSM | ------ | | NS |
| ## 1 | N | 1 | N | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | 2 | NS | 1 | NS | NSM | ------ | | NSM | ------ | | 2 | W | Y | XX | ------ | | 1 | NS | N | NSM | ------ | | NS |
| ## 1 | Y | 2 | N | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | 1 | 16 | NSM | ------ | | NSM | ------ | | 3 | NS[a] | Y | XX | ------ | | 11 | NS[a] | N | NSM | ------ | | 4 |
| NR | ---- | 1 | N | 3 | Y | 3 | R | Y | NP | ------ | | NR | ------ | | NR | --- | NR | -- | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| NR | ---- | 1 | N | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 15 | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | A/W | Y | XX | ------ | | 2 | A/W | N | 1 | NS | N | NS |
| NR | ---- | 1/2 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | 3[r] | 24 | 1 | 16 | 2 | W | N | 2 | Ye/W | N | 4 | A/W | Y | XX | ------ | | 2 | W | Y | 1 | W | N | 4 |
| NR | ---- | 2 | Y | 3 | Y | 3 | R | Y | NSM | ------ | | 3 | R | 15 | NR | --- | 1 | 16 | 2 | A/W | N | 2 | A/W | N | 3 | NS | Y | XX | ------ | | 1 | NS | N | 1 | NS | N | 4 |
| ## 1 | N | NR | --- | 3 | N | 3 | R | Y | NSM | ------ | | 3 | R | 15 | 2 | NS | 1 | 12 | 2 | W | N | 2 | Ye W | N | 3 | AYe W | N | XX | ------ | | 1 | AYe W | N | 1 | NS | N | 4 |
| NR | ---- | NR | --- | 3 | N | 3 | R | Y | NSM | ------ | | NR | ------ | | 2 | 14 | 1 | 14 | 2 | A/W | Y | NSM | ------ | | 2 | NS[b] | Y | XX | ------ | | 1 | NS | Y | NSM | ------ | | NS |
| NR | ---- | NR | --- | 3 | Y | NR | ------ | | NP | ------ | | NR | ------ | | NR | --- | 1 | 16 | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| ## 1 | N | 1 | N | 3 | N | 3 | R | N | NSM | ------ | | 3 | R | 15 | 2 | NS | 1 | NS | NSM | ------ | | NSM | ------ | | 3 | NS | N | XX | ------ | | 1 | NS | N | NSM | ------ | | 4 |
| 1 | N | 1 | Y | 2 | Y | 2 | R | Y | 2 | R | Y | 2 | R | 20 | NR | --- | NR | ---- | 2 | A/W | N | 2 | A/W | N | 3 | NS | Y | 2 | A | Y | 1 | NS | Y | 1 | NS | N | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | 1 | 16 | 2 | Ye W | N | 2 | Ye W | N | 2 | A/W | Y | XX | ------ | | 1 | NS | Y | 1 | AYe W | N | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | NP | ------ | | 3 | R | 15 | 3 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS | Y | XX | ------ | | 1 | NB | Y | NSM | ------ | | 4 |
| NR | ---- | 1 | Y | 2 | Y | 2 | R | Y | NP | ------ | | NR | ------ | | 2 | NS | 1 | NS | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| NR | ---- | 2 | N | 2 | N | 2 | R | N | NP | ------ | | 2 | R | NS | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS | N | XX | ------ | | 2 | NS | Y | NSM | ------ | | NS |
| NR | ---- | 1 | N | 3 | Y | 3 | R | Y | NSM | ------ | | NR | ------ | | 3 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS | Y | XX | ------ | | 2 | NS | Y | NSM | ------ | | 2 |
| NR | ---- | 2 | N | 3 | Y | 3 | R | Y | NP | ------ | | 3 | R | 15 | 2 | 12 | 1 | 16 | NS | A/W | N | NS | A/W | N | 3 | W | N | NS | A/Ye W | N | 1 | W | N | NS | -- | N | NS |
| NR | ---- | 1 | N | 3 | N | 3 | R | N | NSM | ------ | | 3 | R | NS | 2 | NS | 1 | NS | NSM | ------ | | NSM | ---- | | NSM | ---- | | NSM | ------ | | NSM | ------ | | NSM | ---- | | NS |
| NR | ---- | 1 | N | 3 | N | 3 | R | N | 3 | R | Y | NR | ------ | | 3 | 12 | 1 | 12 | 2 | A/W | N | 2 | A/W | N | 3 | NS[a] | Y | XX | ------ | | 1 | NS | Y | 1 | NS | N | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | 3 | 12 | 1 | 12 | 2 | A/W | N | 2 | A/W | N | 3 | W | Y | 2 | A/W | Y | 1 | NS | N | 1 | NS | N | 4 |
| ## 1 | N | 1 | N | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | -- | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | A/W | Y | XX | ------ | | NSM | ------ | | NSM | ---- | | NS |
| ## 1 | N | 2 | N | 3 | Y | 3 | R | Y | 3 | R | N | 3 | R | 15 | 2 | 12 | 1 | 12 | 2 | A/W | N | 2 | A/W | N | 3 | NS | Y | XX | ------ | | 1 | NS | N | 1 | NS | N | 4 |
| NR | ---- | NR | --- | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | -- | NS | --- | NSM | ------ | | NSM | ------ | | 3 | NS | Y | XX | ------ | | 1 | NS | N | NSM | ---- | | NS |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | NSM | ------ | | 3 | R | 15 | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | 2 | NS | N | XX | ------ | | NSM | ------ | | NSM | ---- | | 4 |
| NR | ---- | 2 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 15 | 2 | 12 | 1 | 12 | 2 | A/W | N | 2 | A/W | N | 3 | NS | N | XX | ------ | | 1 | NS | N | 1 | NS | N | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 15 | 2 | 12 | 1 | 12 | 2 | A W | N | 2 | A/W | N | 3 | NS[a] | N | XX | ------ | | 1 | NS[a] | N | 1 | NS | N | NS |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | 2 | 12 | 1 | NS | NSM | ------ | | NSM | ------ | | 2 | NS | Y | 2 | NS | Y | 1 | NS | Y | NSM | ---- | | NS |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | 3 | 12 | 1 | 12 | 2 | NS | Y | NSM | ------ | | 2 | A/W | Y | 2 | A/W | Y | 1 | W | Y | 1 | W | Y | 4 |
| NR | ---- | 1 | Y | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | 1 | 12 | 2 | W | N | 2 | W | N | 1 | NS | Y | 2 | A/W | Y | 1 | W | N | 1 | W | N | 4 |
| ## 1 | N | 1 | Y | 3 | Y | 3 | R | N | 3 | R | N | 3 | NS | 15 | 2 | 12 | 1 | 12 | NSM | ------ | | NSM | ------ | | NSM | ---- | | NSM | ------ | | NSM | ------ | | NSM | ------ | | NS |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | 3 | R | Y | 3 | R | 20 | 2 | NS | 1 | NS | NSM | ------ | | NSM | ------ | | NS | NS | Y | NS | NS | Y | NS | W | Y | NSM | ------ | | 4 |
| NR | ---- | NR | ---- | 3 | Y | 3 | R | Y | 3 | R | Y | NR | ------ | | NR | --- | NR | --- | NSM | ------ | | NSM | ------ | | 2 | NS[a] | Y | XX | ------ | | 2 | NS[a] | Y | NSM | ------ | | NS |

ed to
1, 1948

(This chart should always be used in conjunction with the other chart which follows it and upon which is shown the various vehicles and combinations of vehicles upon or with which the various items of "automotive safety equipment" shown on this chart must or may be affixed or used.)

| APPROVED | DRIVING LAMPS PERMITTED LIT AT ONE TIME. | JURISDICTION EXERCISING CONTROL OVER USE OF EQUIPMENT LISTED. |
|---|---|---|
| ## | 4 | I.C.C. |
| -- | NS | ALA. |
| -- | NS | ARIZ. |
| N | 4 | ARK. |
| N | 4 | CALIF |
| Y | 4 | COLO. |
| -- | 4 | CONN. |
| -- | 4 | DEL. |
| -- | 2 | D. C. |
| -- | NS | FLA. |
| N | NS | GA. |
| -- | 2 | IDA. |
| N | 4 | ILL. |
| N | 4 | IND. |
| N | 4 | IOWA |
| Y | 4 | KAN. |
| --- | NS | KY. |
| --- | NS | LA. |
| --- | NS | ME. |
| --- | 4 | MD. |
| --- | NS | MASS. |
| N | NS | MICH. |
| N | 4 | MINN. |
| N | 4 | MISS. |
| N | 4 | MO. |
| --- | NS | MONT. |
| --- | NS | NEBR. |
| --- | 4 | NEV. |
| N | 4 | N.H. |
| N | 4 | N. J. |
| -- | 4 | N. M. |
| -- | NS | N. Y. |
| -- | NS | N. C. |
| -- | 2 | N. D. |
| N | NS | OHIO |
| -- | NS | OKLA. |
| N | 4 | ORE. |
| N | 4 | PENN. |
| -- | NS | R. I. |
| N | 4 | S. C. |
| -- | NS | S. D. |
| -- | 4 | TENN. |
| N | 4 | TEX. |
| N | NS | UTAH |
| -- | NS | VT. |
| Y | 4 | VA. |
| N | 4 | WASH. |
| --- | NS | W.VA. |
| --- | 4 | WISC. |
| --- | NS | WYOM. |

# FOOTNOTES

## EXPLANATION OF I.C.C. REFERENCES

\# - The I.C.C. Motor Carrier Safety Regulations apply to "Automotive Safety Equipment" on vehicles operated by common and contract carriers ("for hire" carriers) of persons or property and by private carriers of property, when operated regularly in interstate or foreign commerce, except when operated wholly within a municipality, between contiguous municipalities, or within a zone adjacent to and commercially a part of any such municipality or municipalities. When vehicles of common, contract or private carriers are transporting explosives or other dangerous articles the last-mentioned exception does not apply.

(For the duration of the war, the Commission's Safety Regulations also apply to all vehicles of common, contract or private carriers transporting explosives and other dangerous articles in intrastate commerce, except those transporting liquefied petroleum gases in containers other than cargo tanks and except those transporting inflammable liquids.)

References in these charts to vehicles covered by I.C.C. Safety Regulations, refer only to vehicles operated as above explained.

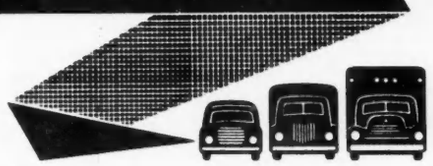
\## - Requires "a device or other means of preventing or removing ice or frost" from windshield.

\### - I.C.C. neither approves nor disapproves any individual required item. Its Motor Carrier Safety Regulations, however, set forth certain constructional details or performance standards to which certain items must conform. Reference should be made to the Motor Carrier Safety Rules for complete details.

## COLOR AND REQUIREMENT SYMBOLS

A - Amber
G - Green
R - Red
N - No
NP - Not Permitted
NR - Not Required
NS - Not Specified
NSM - Not Specifically Mentioned
Y - Yes
Ye - Yellow
W - White
/ - When used between two letters or numbers means "or". Example - 2/4 means "2 or 4".

SELECTION & OPERATION



## GENERAL FOOTNOTES

a - Prohibits red light visible from in front of vehicle.
b - Prohibits red or green light visible from in front of vehicle.
c - Tail lamp or separate lamp shall illuminate rear license plate with white light.
d - Must be located and constructed so as to illuminate rear license plate with white light.
e - May be incorporated in tail lamp.
f - Semaphores required on school buses.
g - One or both may be incorporated in tail lamp or lamps.
h - Number plate must be illuminated with white light.
i - Also two yellow reflectors on front of $Tk^{b}$ and $B^{5a}$.
j - Also one amber reflector on front of vehicle.
k - One may be part of tail lamp.
L - Combination tail-stop lamp required on cabin trailers.
m - Reflectors may be substituted.
n - Reflectors may be used when vehicle has acetylene lamps.
o - Clearance and marker lamps may be in combination.
p - Where green originally used, may be continued till replacements are necessary.
r - Yellow or orange flags required.
s - On vehicles over 45 feet long, rear clearance and marker lamps shall be in combination.
t - One green marker lamp every 10 feet on combinations over 33 feet long.
u - Reflectors required on front and/or rear of vehicle.
v - Rear clearance lamps may be red. May also be green on vehicles used prior to January 1, 1940.
w - Both lamps must show white to front and red to rear.
x - Step lamps required on all buses.
y - Trailer and semi-trailers shall have one lamp on front visible from both sides.
z - May be used only for reading signs or as an emergency light.
aa - Every vehicle 72" or more wide must have 2 amber or clear front, and 2 amber, clear or red rear reflectors. Clearance lamps may be substituted. Reflectors must be approved. Clearance lamps need not be approved.
cc - Vehicles manufactured after January 1, 1943 shall have double wipers.
dd - On interstate buses - green lights adjacent to destination sign or near upper corners;
On intrastate buses - purple lights in same locations.
ee - Double wipers required on all school buses.
ff - Two yellow stop lamps required on all buses.
ii - Clearance and marker lamps may be in combination. When in combination there must be one such lamp on each side, midway of vehicle.

XX - Fog lamps are included within the term "Auxiliary Driving Lamps" and are treated accordingly.

SAFETY EQUIPMENT

# VEHICLES AND LOCATIONS ON OR IN

| Jurisdictions exercising control over use of safety equipment | ← REQUIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HEAD LAMPS | | TAIL LAMPS | | STOP LAMPS | | REAR REFLECTORS | | CLEARANCE LAMPS | | SIDE-MARKER LAMPS | | IDENTIFICATION LAMPS | | DIRECTION SIGNALS | | SIDE REFLECTORS | | | | | | | | | | | |
| | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | Vehicles on Which Required | Location | | | | | | | | | | |
| I.C.C. | B-Tk Tra | F-eS | B-Tk-Tra T-St-Pt | Re[jj] | B-Tk-Tra T-St[r s] | Re | B-Tk- T-St-Pt | Re-eS[jj] | 2-Tra-Pt[28] 4-B-Tk T-St[e r] | F-eS F&Re eS | 2-Pt[28] 4-B-Tk T-St[e r] | eS F&Re | NR | | NR | | 2-Pt 4-B-Tk T-St[e r] | eS-Re eS-F&Re | B-T Tra | | | | | | | | | |
| ALA. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | NR | | EMV[2 e] | L-eS F&Re | NR | | NR | | 3 | NS | NR | | 7 | | | | | | | | | |
| ARIZ. | EMV[2] | F-eS | EMV-VET | Re | 3 | Re | NR | | EMV[2 e] | L-eS F&Re | NR | | NR | | 3 | F&Re-eS | NR | | 7 | | | | | | | | | |
| ARK. | EMV[1] | F-eS | EMV-VET | Re | 3 | Re | EMV-33 T-St-CMV | Re | EMV[e] | LeS-F&Re | EMV-COMB.[6] | eS-F&Re | EMV[e h] | F&Re TC | 3 | F&Re eS | NR | | EMV | | | | | | | | | |
| CALIF. | EMV[1] | F-eS[kk] | EMV-VET | Re | 3 | Re | 1-CMV 2 - 34 | Re-eS | EV[e] | F&Re eS | NR | | NR | | 3 | F-Re-eS | NR | | 7 | | | | | | | | | |
| COLO. | EMV[1] | F-eS | EMV-VET | Re | EMV | Re | EMV-VET | Re-eS | EV[e] | F&Re eS | EV[e] | F&Re eS | NR | | 3 | F&Re eS | EV[e JJ] | eS-F&Re | 7 | | | | | | | | | |
| CONN. | EMV[1] | F-eS | EMV | Re | CMV[21] | RE | 1-EV[e] 2-EV[d] | F&Re eS | EV[d] | F&Re eS | NR | | See first page | | 3 | F&Re eS | NR | | EMV | | | | | | | | | |
| DEL. | EMV[2] | F-eS | EMV-VET | Re[ff] | NR | | EV[e] | Re | EV[e] | F&Re eS | See first page | | NR | | 3 | F&Re eS | NR | | EMV | | | | | | | | | |
| D. C. | EMV[1] | F-eS | EMV-VET | Re | NR | | CMV-R-St B 5 | ee Re-eS | Same as I.C.C. | | Same as I.C.C. | | NR | | 3 | F&Re eS | Same as I.C.C. | | 1-7 2-R | | | | | | | | | |
| FLA. | EMV[1] | F-eS | EMV-T-St | Re | B-Tk-Tra-T-St-Pt[m] | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | NR | | B-Tk e T-St r | eS-F&Re | 7 | | | | | | | | | |
| GA. | EMV Tra | Rt t Le S | EMV Tra-T | Re[23] | MC | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | NR | | Same as I.C.C. | | B-T Tra | | | | | | | | | |
| IDA. | EMV[2] | F-oS | EMV-VET | Re | EMV | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | 3 | F-eS | Same as I.C.C. | | EV | | | | | | | | | |
| ILL. | EMV | F-eS | EMV-T-St | Re | 3 | NS | B-Tk-Tra T-St | Re-LeS | Tk-Tra-T-St | eS | Tk-Tra-T-St | eS | B-Tk-Rea T-St ex | F&Re TC | 3 | NS | B-Tk-Tra T-St | g 12 | EMV | | | | | | | | | |
| IND. | EMV | F-eS | EMV-VET | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | 3 | F&Re eS | Same as I.C.C. | | 7 | | | | | | | | | |
| IOWA | EMV[1] | F-eS | EMV-VET | Re | EMV-SB[18] | LeS-Re | 1-EMV T-St 2-Tk-T | Re eS | 2-Tra e h 4-Tk-T-St | F-eS eS-FRe | 2-Tra-T-St 4-Tk e h r | eS F&Re | Tk-Comb. | F&Re TC | NR | | 2-Tk n r 4-Tk-T-St | eS-Re F&Re | EMV | | | | | | | | | |
| KAN. | EMV[1] | F-oS | EMV-VET | Re | 3 | Re | EMV-T-St | Re | MC | LeS-F&Re | MC-Comb[6] | eS-F&Re | MC e h | F&Re TC | NR | | NR | | 7 | | | | | | | | | |
| KY. | EMV | F | EMV | Re | B-Tk T-St | Re | NR | | Same as I.C.C. | | Same as I.C.C. | | T | LeS | NR | | Same as I.C.C. | | CMV | | | | | | | | | |
| LA. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | NR | | Tk-Comb[b] | LeS-F&Re | CMV[2] | Top Cab | NR | | 3 | F&Re eS | NR | | 7 | | | | | | | | | |
| ME. | EMV[1] | F-eS | EMV-VET | Re[23] | NR | | EMV-T | Re | 2-EMV f 3-EMV f | F&Re LeS26 | NR | | 25 | 25 | NR | | NR | | WC | | | | | | | | | |
| MD. | EMV[1] | F-eS | EMV-VET | Re | 3 | Re | EMV-T-St | Re | EV[e] | F&Re LeS | EV[g] | eS-F&Re | NR | | 3 | F&Re eS | See first page | | EMV | | | | | | | | | |
| MASS. | EMV[1] | F-eS | EMV-VET | Re | NR | | Tk[n]-Comb | Re | Tk-T[o] | LeS F | NR | | NR | | NR | | NR | | 7 | | | | | | | | | |
| MICH. | EMV[2] | F-eS | EMV-VET | Re | B-Tk-Tra T-St | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | NR | | Same as I.C.C. | | 7 | | | | | | | | | |
| MINN. | EMV[1] | F-eS | EMV-VET | Re | 3 | Re | EMV-T-St | Re | EV[e] | F&Re eS | MC[hh] | eS F&Re | NR | | 3 | NS | NR | | 7 | | | | | | | | | |
| MISS. | EMV[1] | F-eS | EMV-VET | Re | 3 | Re | EMV-T-St | Re[11] | MC-CMV | LeS-F&Re | MC-Comb[6] | eS F&Re | MC-Comb. e h | F&Re TC | 3 | F&Re eS | NR | | 7 | | | | | | | | | |
| MO. | EMV | F-eS | EMV | Re | NR | | Same as I.C.C. | | NR | | Same as I.C.C. | | NR | | NR | | NR | | 7 | | | | | | | | | |
| MONT. | EMV | F-eS | EMV | Re | NR | | NR | | EMV[e] | F&Re eS | NR | | NR | | NR | | NR | | EMV | | | | | | | | | |
| NEBR. | EMV | F-eS | EMV | Re | AMV | Re | EMV[e] | Re | EMV[e] | F&Re eS | NR | | NR | | NR | | EMV[e] | eS-F&Re | 7 | | | | | | | | | |
| NEV. | EMV[1] | F-eS | EMV-VET | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | NR | | Same as I.C.C. | | Tk | | | | | | | | | |
| N.H. | EMV | F-eS | EMV-Tra-T-St | Re[ix] | NR | | B-Tk-T-St | Re-eS[ii] | B-Tk T-St e | F&Re eS | i | eS-R | NR | | NR | | B-Tk r T-St | eSix F&Re | 7 | | | | | | | | | |
| N.J. | EMV[1a] | F-eS | EMV-VET | Re[ff] | 3 | Re | 1-EMV 2-CMV-B | Re Re-eS | NR | | NR | | NR | | 3 | F&Re eS | NR | | 7 | | | | | | | | | |
| N.M. | EMV[1] | F-eS | EMV-T-St | Re | MC | Re | 1-EMV 2-MC-T-St | Re | Same as I.C.C. | | EMV[6] | eS F&Re | NR | | 3 | F&Re eS | MC e T-St r | eS-F&Re | 7 | | | | | | | | | |
| N.Y. | EMV[2] | F-eS | EMV | Re | EV | Re | 2-Tk[b]Bba 1-Others | Re-eS Re | NR | | NR | | NR | | 3 | F&Re eS | NR | | B-S | | | | | | | | | |
| N.C. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | VET | Re | EMV e Comb. | F&Re eS | NR | | NR | | CMV | F&Re | NR | | 7 | | | | | | | | | |
| N.D. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | NR | | EMV[e] | LeS-F&Re | NR | | NR | | NR | | NR | | 7 | | | | | | | | | |
| OHIO | EMV[1] | F-eS | EMV-VET | Re | 3 | Re | EMV[20] | RE-eS | B-Tk-Tra T-St-Pt | F&Re eS | B-Tk-Tra T-St-Pt | eS-F&Re | NR | | NR | | Same as I.C.C. | | EMV | | | | | | | | | |
| OKLA. | EMV[1] | F | EMV | Re | EMV | Re | T-St-Pt[f] | Re | CV[b] | LeS F&Re | CV[b] | LeS-F&Re | NR | | NR | | CV | eS-F&Re | 7 | | | | | | | | | |
| ORE. | EMV | F-eS | EMV-T-St-Pt | Ro | 3 T-St r | Re | EMV[17] | Re eS[jj] | 2-(30) 4-(31) | eS-F eS-F&Re | 2-(30) 4-(31) | eS-F eS-F&Re | NR | | 3 | F&Re | Same as I.C.C. | | EMV | | | | | | | | | |
| PENN. | EMV[2] | F-eS | EMV-VET | Re | NR | | B-CMV T-St | Re[ii] | EV[e] | LeS-F&Re | CV-Comb.[6] | eS-F&Re | NR | | 3 - 18 | F&Re eS | NR | | 7 | | | | | | | | | |
| R.I. | EMV[1] | NS | EMV-T-St | Ro | NR | | B-Tk-T-St | Re[23] | NR | | NR | | NR | | 3 | F&Re eS | EV[e] | LeS | B- | | | | | | | | | |
| S.C. | EMV[1] | F-eS | EMV | Re | MC[3] | Re | EV-8b CV-8c | Re[ii] | EV[e] | F&Re eS | Same as I.C.C. | | EV-Comb e h | F&Re TC | 3 | F&Re eS | Same as I.C.C. | eS[jj] F&Re | SB Tk- | | | | | | | | | |
| S.D. | EMV[2] | F-oS | EMV-VET | Re | 3 | Ro | EMV-T-St | Re[hx] | MC | LeS-F&Re | NR | | MC e h | F&Re TC | 3 | F&Re eS | NR | | 7 | | | | | | | | | |
| TENN. | EMV[2] | F-oS | EMV-VET | Re | EMV | Ro | EMV 2 e | Re-eS | EMV[2] e | F&Re eS | EMV[2] e | eS-F&Re | NR | | NR | | EMV[2] e | eS-F&Re | Tk | | | | | | | | | |
| TEX. | EMV[1] | F | EMV-VET | Re | B-EMV-6a | Re | EMV | Re-eS | EMV[2] b | F&Re eS | Same as I.C.C. | | NR | | 3 | F&Re eS | Same as I.C.C. | | CM | | | | | | | | | |
| UTAH | EMV[1] | F-eS | EMV-VET | Re | Same[3] as I.C.C. | | EMV 17 | Re-eS | Same as I.C.C. | | Same as I.C.C. | | NR | | 3 | F&Re eS | Same as I.C.C.[jj] | | 7 | | | | | | | | | |
| VT. | EMV[1] | NS | EMV | Re | 3 | Re | NR | | EMV[e] | LeS | NR | | NR | | 3 | NS | NR | | Tk | | | | | | | | | |
| VA. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | NR | | EMV[fx] | F&Re eS | NR | | PSV | F | 3 | F&Re eS | NR | | EM | | | | | | | | | |
| WASH. | EMV[1] | F-eS | EMV-VET | Re | EMV | Re[jj] | EMV-T-St | Re[jj] | B-Tk-Tra T-St e | F&Re eS | Same as I.C.C. | | NR | | 3 | F&Re eS | EMV-Comb r | h F&Re | EM | | | | | | | | | |
| W.VA. | EMV Tra | F-eS | EMV-VET | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | T-St h | F-LeS | NR | | NR | | B- T | | | | | | | | | |
| MISC. | EMV[1] | F | EMV | Re | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | Same as I.C.C. | | NR | | NR | | Same as I.C.C. | | EM | | | | | | | | | |
| WYOM. | EMV[2] | F-oS | EMV-VET | Re | 3 | Re | CMV-T-St | Re | EMV[2b] | LeS F&Re | NR | | NR | | 3 | F&Re eS | NR | | 7 | | | | | | | | | |

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# IN WHICH SAFETY EQUIPMENT IS USED

R E D →

| TORS Location | REAR VIEW MIRRORS: Vehicles on Which Required | REAR VIEW MIRRORS: Location | WIND-SHIELD WIPERS: MUST BE USED WITH | DE-FROST-ERS: MUST BE USED WITH | FIRE EXTIN-GUISH-ERS: MUST BE USED WITH | LIQUID BURNING FLARES: MUST BE USED WITH | ELECTRIC FLARES: MUST BE USED WITH | RE-FLECTOR FLARES: MUST BE USED WITH | FUSEES: MUST BE USED WITH | RED CLOTH FLAGS: MUST BE USED WITH | LITE OR FLAG ON PROJECT-ING LOAD: USED WITH PRO-JECTION OF-- |
|---|---|---|---|---|---|---|---|---|---|---|---|
| eS Re eS-F&Re | B-Tk Tra | 11 | 27 | EMV [6] | B-Tk-Tra | All buses, trucks and tractors (See General Footnote O) | | | | Same as Flares | Any |
| ----- | 7 | 8 | NR | NR | NR | PC-Tk-CMV | NR | Same as [3] | Flares | Same as Flares | 4' |
| ---- | 7 | 8 | 27 | MC [6] | SB-MC | B-Tk-Tra [13] | 13 | 15 | 15 | Same as Flares | 4' |
| ---- | EMV | 8 | EMV | NR | 19 | Tk 13 | Tk 13 | Tk 14 | NR | NR | 4' |
| ---- | 7 | 8 | 27 | NR | SB | Tk [p] -Tra | 13 | 14 | NR | NR | 4' |
| eS-F&Re | 7 | 8 | EMV | NR | 19 | Tk-B-Tra-SB | 13 | 14 | 15 | Same as Flares | 4' |
| ----- | EMV | 8-9 | EMV | SB-PSV | MC-SB | B-Tk-Comb-PSV | Same as for liquid burning flares | | Same as Flares | NR | 10 |
| ---- | EMV | 11 | EMV | NR | NR | Tk [6] 13 | 13 | 14a | NR | NR | 4' |
| I.C.C. | 1-7 2-B | 11 | EMV | NR------ | | NR------ | NR------ | NR------ | NR | NR | 4' |
| eS-F&Re | 7 | 8 | 27 | NR | NR | B-Tk-Tra | 13 | NR------ | 15 | Same as Flares | 4' |
| I.C.C. | B-Tk-Tra | 11 | 27 | EMV [6] | B-Tk-Tra | Same as I.C.C. | Same as I.C.C. | | Same as Flares | Same as Flares | Any |
| I.C.C. | EV | 8 | EMV | NR | NR | B-Tk-Tra [13] | 13 | 14 | NR | NR | 4' |
| [6] 12 | EMV | 8 | 27 | NR | 19 | B-Tk-Tra | 13 | 14 | NR | NR | 4' |
| I.C.C. | 7 | 9 | EMV | NR | B-Tk-Tra | Same as | I.C.C. | NR | Same as I.C.C. | Same as Flares | Any |
| eS-Re F&Re | EMV | 8 | 27 | NR | 19 | Tk-Tra Comb [13] | 13 | 14 | 15 | Same as Flares | 4' |
| ----- | 7 | 8 | EMV | SB | 19 | Tk 13 | 13 | 14 | Tk 16 | Same as Flares | 4' |
| I.C.C. | CMV | 11 | 27 | EMV [6] | B-Tk-Tra | Same as | I.C.C. | Same as | I.C.C. | Same as Flares | 5' |
| ----- | 7 | 8 | NR | NR | B | Tk-B | Tk-B | NSM | NR | Same as Flares | Any |
| ----- | WC-7 | 8a | MC | MC | MC | MC 13 | 13 | 14a | NR | Same as Flares | 5' |
| st | EMV | 11 | 27 | SB | SB 19 | EV [29] 13 | 13 | 14 | NR | NR | 4' |
| ---- | 7 | 11 | 27 | NR | B [4] | CMV [s] | CMV [s] | NP | NR | NR | NR |
| I.C.C. | 7 | 11 | 27 | NR | MC-SB | MC 13 | 13 | 14a | 15 | Same as Flares | 4' |
| ---- | 7 | 8 | 27 | NR | 19 | B-Tk-Tra [13] | 13 | 14 | NR | Same as Flares | 4' |
| ---- | 7 | 8 | EMV | NR | 19 | B-Tk 13 | 13 | NSM | 15 | Same as Flares | 4' |
| ---- | 7 | 8 | 27 | 6 | NR | B-Tk-Tra | 13 | NSM | NR | Same as Flares | Any |
| ---- | EMV | 8 | NR | NR | NR | Same as | I.C.C. | NSM | NR | Same as Flares | 4' |
| eS-F&Re | 7 | 8 | 27 | NR | NR | B-Tk-32 | NR | NSM | NR | NR | 3' |
| I.C.C. [dd] | Tk [7] | 11 | MC | MC | MC | MC 13 | 13 | NSM | MC 15 | Same as Flares | Any |
| eSix F&Re | 7 | 11 | EMV | 6a | PC | B-Tk-Tra [13] | 13 | 14a | 15 | NR | NR |
| ---- | 7 | 8 | 27 | NR | B-SB | CMV [s] B 5b 13 | 13 | 14a | NR | NR | Any |
| eS-F&Re | 7 | 8 | 27 | NR | B-Tk | B-Tk | B-Tk | NP | Same as Flares | Same as Flares | 4' |
| ---- | B-Tk | 11 | NR | NR | 19 B 5b | B 5b Tk B Comb | Same as Flares | NP | NR | NR | 4' |
| ---- | 7 | 8 | 27 | NR | 19 | Tk-Tra-T-St | Tk-Tra-T-St | Tk-Tra-T-St | Same as Flares | Same as Flares | 4' |
| ---- | 7 | 8 | 27 | NR | MC | MC | MC | NSM | NR | Same as Flares | 4' |
| I.C.C. | EMV | 11 | 27 | NR | 19 | B-Tk-Tra [13] | 13 | NP | 15 | Same as Flares | 4' |
| eS-F&Re | 7 | 8 | 27 | NR | 19 | CV [13] | 13 | NSM | Same as Flares | Same as Flares | 4' |
| I.C.C. | EMV | 8 | 27 | NR | SB | B-Tk 13 | 13 | 14a | NR | Same as Flares | 4' |
| ---- | 7 | 8 | EMV | NR | SB-HT CMV 19 | B-HT-CMV [13] | 13 | 14a | NR | Same as Flares | 4' |
| LeS | B-Tk | 11 | SB | SB | SB | PSV CMV k | PSV CMV k | PSV CMV k | NR | NR | 4' |
| eS [jj] F&Re | SB Tk-Tra | 11 LeS | SB EMV 32 | 27-6 | 19 | Same as I.C.C. | Same as I.C.C | | 15 | Same as Flares | 4' |
| ---- | 7 | 8 | NR | NR | NR | Tk-Tra Comb 13 | 13 | 14 | NR | NR | NSM |
| eS-F&Re | Tk [7] | 11 | NR | NR | B-Tk-Tra | B-Tk-Tra [13] | 13 | NSM | 15 | Same as Flares | 4' |
| I.C.C. | CMV | 11 | NR | NR | NR | B-CMV-T-St- 32 | Same as Flares | | Same as Flares | NR | Any |
| I.C.C. [jj] | 7 | 8 | EMV | NR | 19 | B-Tk-Tra [13] | 13 | 14a | 15 | Same as Flares | Any |
| ----- | Tk | 11 | EMV | NR | HT | Tk [16] B | 16 | 16 | NR | Same as Flares | Any |
| ---- | EMV | 8 | 27 | NR | NR | B-Tk 14 | B-Tk 14 | B-Tk 14 | NR | Same as Flares | 4' |
| [h] F&Re | EMV | 8 | EMV | NR | 19 | Tk-CMV 13 | 13 | 14a | NR | NR | 4' |
| ----- | B-Tk-Tra | 8 | 27 | EMV [6] | MC | MC | MC | MC | MC | Same as Flares | 5' |
| I.C.C. | EMV | 11 | 27 | NR | NR | Same as | I.C.C. | Same as | I.C.C. | Same as Flares | 4' |
| ----- | 7 | 8 | 27 | NR | NR | B-Tk-Comb. 13 | 13 | 14 | NR | NR | NR |

P E R M I T T

| SIDE-COWL-FENDER: Vehicles on which Permitted | SIDE-COWL-FENDER: Location | RUNNING-BOARD COURTESY: Vehicles on which Permitted | RUNNING-BOARD COURTESY: Location | AUXILIARY DRIVING LAMPS: Vehicles on which Permitted | AUXILIARY DRIVING LAMPS: Location | FOG LAMPS: Vehicles on which Permitted | FOG LAMPS: Location | Vehicles |
|---|---|---|---|---|---|---|---|---|
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | |
| NSM----- | ----- | NSM----- | ----- | AMV | F hh | XX----- | ----- | |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | |
| AMV | NS | AMV | eS | AMV | F cc | XX----- | ----- | |
| AMV | NS | AMV | NS | AMV | F gy | AMV | F gg | |
| AMV | NS | AMV | eS | AMV | cc | XX----- | ----- | |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | XX----- | ----- | |
| NSM----- | ----- | NSM----- | ----- | AMV | cc | AMV | cc | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | bb | AMV | bb | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |
| AMV | NS | AMV | eS | AMV | cc | XX----- | ----- | AM |
| AMV | NS | AMV | NS | AMV | cc | XX----- | ----- | AM |
| AMV | NS | AMV | eS | AMV | cc | XX----- | ----- | AM |
| AMV | NS | AMV | NS | AMV | F cc | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | AMV | NS | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |
| AMV | F-eS | AMV | eS | AMV | cc F-eS | XX----- | ----- | AM |
| AMV | NS | AMV | NS | AMV | cc | XX----- | ----- | AM |
| AMV | NS | AMV | eS | AMV | NS | XX----- | ----- | AM |
| AMV | NS | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | F cc | XX----- | ----- | AM |
| AMV | NS | AMV | NS | AMV | cc | AMV | cc | AM |
| AMV | NS | AMV | NS | AMV | cc | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |
| AMV | NS | AMV | eS | AMV | F | AMV | F | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| AMV | NS | AMV | eS | AMV | aa | XX----- | ----- | AM |
| AMV | NS | AMV | eS | AMV | F | AMV | F | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | XX----- | ----- | NS |
| AMV | NS | AMV | NS | AMV | cc | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | F aa | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | F | XX----- | ----- | NS |
| AMV | NS | AMV | eS | AMV | cc | XX----- | ----- | AM |
| AMV | NS | AMV | NS | AMV | cc | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | AMV | NS | AM |
| AMV | NS | NSM----- | ----- | AMV | NS | AMV | NS | AM |
| AMV | NS | AMV | eS | AMV | F cc | XX----- | ----- | AM |
| NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NSM----- | ----- | NS |
| NSM----- | ----- | NSM----- | ----- | AMV | NS | AMV | ss | AM |
| NSM----- | ----- | NSM----- | ----- | AMV | hh | XX----- | ----- | AM |

**SED** Revised to February 1, 1948

(This chart should always be used in conjunction with the other chart which precedes it and upon which is shown the various items of "automotive safety equipment" which must or may be used with or on the vehicles indicated on this chart.)

| I T T E D | | | | | | | |
|---|---|---|---|---|---|---|---|
| FOG LAMPS | | SPOT LAMPS | | BACK-UP LAMPS | | Jurisdictions exercising control over use of safety equipment. |
| Vehicles on which Permitted | Location | Vehicles on which Permitted | Location | Vehicles on which Permitted | Location | |
| NSM- | ----- | NSM- | ----- | EMV | Re | I.C.C. |
| XX- | ----- | AMV | NS | NSM- | ---- | ALA. |
| XX- | ----- | AMV | oo | NSM- | ---- | ARIZ. |
| XX- | ----- | AMV | NS | AMV | NS | ARK. |
| AMV | p gg | AMV | nn | AMV | NS | CALIF. |
| XX- | ----- | AMV | NS | AMV | NS | COLO. |
| XX- | ----- | AMV | NS | NSM- | ---- | CONN. |
| AMV | cc | AMV[22] | NS | NSM- | ---- | DEL. |
| AMV | bb | AMV[22] | NS | NSM- | ---- | D. C. |
| NSM- | ----- | NSM- | ---- | NSM- | ---- | FLA. |
| NSM- | ----- | NSM- | ----- | AMV | NS | GA. |
| XX- | ----- | AMV | NS | NSM- | ---- | IDA. |
| XX- | ----- | AMV | NS | AMV | NS | ILL. |
| XX- | ----- | AMV | NS | AMV | NS | IND. |
| XX- | ----- | AMV | NS | AMV | NS | IOWA |
| XX- | ----- | AMV | NS | AMV | Re | KAN. |
| NSM- | ----- | NSM- | ----- | NSM- | ----- | KY. |
| XX- | ----- | XP- | ---- | NSM- | ----- | LA. |
| AMV | NS | AMV | NS | NSM- | ----- | ME. |
| XX- | ----- | AMV | NS | NSM- | ----- | MD. |
| NSM- | ----- | NSM- | ----- | NSM- | ----- | MASS. |
| XX- | ----- | AMV | NS | AMV | NS | MICH. |
| XX- | ----- | AMV | NS | AMV | NS | MINN. |
| XX- | ----- | AMV | NS | AMV | NS | MISS. |
| XX- | ----- | AMV | NS | EMV | Re | MO. |
| XX- | ----- | AMV | NS | NSM- | ---- | MONT. |
| NSM- | ----- | NSM- | ----- | NSM- | ---- | NEBR. |
| XX- | ----- | AMV | NS | NSM- | ----- | NEV. |
| AMV | ee | AMV | NS | AMV | NS | N.H. |
| XX- | ----- | AMV | NS | AMV | Re | N.J. |
| XX- | ----- | AMV | NS | NSM- | ----- | N.M. |
| NSM- | ----- | NSM- | ----- | NSM- | ----- | N.Y. |
| XX- | ----- | AMV | NS | NSM- | ----- | N.C. |
| XX- | ----- | AMV | NS | NSM- | ----- | N.D. |
| AMV | F | AMV | NS | AMV | NS | OHIO |
| NSM- | ----- | NSM- | ----- | NSM- | ----- | OKLA. |
| XX- | ----- | AMV | NS | AMV | NS | ORE. |
| AMV | F | AMV | NS | AMV | NS | PENN. |
| XX- | ----- | NSM- | ----- | NSM- | ----- | R.I. |
| XX- | ----- | AMV | NS | AMV | NS | S.C. |
| XX- | ----- | AMV | NS | NSM- | ----- | S.D. |
| XX- | ----- | NSM- | ----- | NSM- | ----- | TENN. |
| XX- | ----- | AMV | NS | AMV | NS | TEX. |
| XX- | ----- | AMV | NS | AMV | NS | UTAH |
| AMV | NS | AMV | NS | NSM- | ----- | VT. |
| AMV | NS | AMV | NS | AMV | NS | VA. |
| XX- | ----- | 2EV 0T | hh pp | AMV | NS | WASH. |
| NSM- | ----- | NSM- | ----- | AMV | Re | W.VA. |
| AMV | ff | AMV | NS | NSM- | ---- | WISC. |
| XX- | ----- | AMV | NS | NSM- | ---- | WYOM. |

# FOOTNOTES

## VEHICLE DESIGNATIONS

AV - Any Vehicle
AMV - Any Motor Vehicle
B - Bus
C - Commercial
CV - Commercial Vehicle
CMV - Commercial Motor Vehicle
Comb - Combination of Vehicles
EV - Every Vehicle
EMV - Every Motor Vehicle
HT - House Trailer
MC - Motor Carrier
MV - Motor Vehicle
PC - Passenger Carrier
PrV - Private Vehicle
PS - Public Service
PSV - Public Service Vehicle
PT - Pole Trailer
SB - School Bus
T - Trailer
TC - Top Center
Tk - Truck
Tra - Tractor
St-- Semi-trailer
VET - Vehicle at end of train

a -
a - 52" or more in width
b - 70" or more in width
c - Under 72" in width
d - 72" or more in width
e - 80" or more in width
f - 84" or more in width
g - Over 20' long
h - Over 30' long
i - Over 45' long
j - Over 8' in height
k - Over 2,000 lbs. capacity
m - Over 3,000 lbs. capacity
n - 2 tons capacity or over
o - 3 tons capacity or over
p - Over 4,000 lbs. net weight
r - Over 3,000 lbs. gross weight
s - Over 5,000 lbs. gross weight
t - Over 11,000 lbs. gross weight
ch - Over 72" wide or 30' long
fx - Over 7' wide or high
ex - Over 80" wide or 25' long
z - If stop lamp on drawing vehicle obscured

## LOCATION SYMBOLS

F - Front
Re - Rear
S - Side
Le - Left
Rt - Right
eS - Each side
Re-eS - Rear-each side
F-eS - Front-each side
F-oS - Front-opposite sides

aa-Not less than 12" nor over 24" above ground
bb-Not less than 12" nor over 30" above ground
cc-Not less than 12" nor over 42" above ground
dd-Not less than 12" nor over 48" above ground
ee-Not less than 14" nor over 42" above ground
ff-Not less than 15" nor over 48" above ground
gg-Not less than 16" above ground
gx-Not less than 18" above ground
hh-Not less than 24" above ground
hx-Not less than 42" above ground
ii-Not less than 24" nor over 42" above ground
ix-Not less than 24" nor over 48" above ground
jj-Not less than 24" nor over 60" above ground
kk-Not less than 28" nor over 54" above ground
nn-Not less than 30" nor over 72" above ground
oo-Not less than 50" nor over 72" above ground
pp-Not less than 24" nor over 72" above ground

## GENERAL FOOTNOTES

0 - Liquid burning flares are not permitted with inflammable liquids or inflammable compressed gases in cargo tanks. Otherwise liquid burning, electric or reflector flares may be used interchangeably. Fusees must be used with liquid burning flares.
1 - Other than motorcycles. 1a - Other than motorcycles and motor-drawn vehicles.
2 - Other than motorcycles, road rollers, road machinery and farm tractors.
3 - Any vehicle so constructed or loaded that hand and arm signals are not visible from both in front and from rear. 3a - Private passenger car no requirement.
4 - Operating in intrastate transportation.
5 - Carrying over 6 passengers. 5a - Over 7 passengers. 5b - Over 10 passengers.
6 - Whenever used where ice formation is probable. 6a- Manufactured after 1/1/48
7 - Any motor vehicle so constructed or loaded as to prevent driver from having a view of the highway to the rear of his vehicle.
7a- Any vehicle towing a vehicle constructed or loaded to prevent view to rear.
8 - So as to provide a view 200' to the rear. 8a- So as to provide a view 50' to the rear.
8b- Built after 4/29/38. 8c - Operated after 4/29/38.
9 - When view to rear in regular mirror is obstructed, must have a side mirror.
10 - A red light or lantern is required on any load which projects beyond rear of vehicle.
11 - So as to provide view to rear.
12 - At approximately one-third points on each side.
13 - Vehicles carrying inflammables and explosives must carry electric flares. Either electric flares or liquid-burning flares must be used on all other vehicles with which flares are required.
14 - Reflector flares may be used in place of electric flares on any vehicle carrying inflammable liquids in cargo tanks in interstate or foreign commerce and vehicles transporting inflammable compressed gases in cargo tanks in interstate, foreign or intrastate commerce. 14a - Interchangeable with liquid burning or electric flares.
15 - Fusees must be used with same venicles as and when liquid-burning flares are used. Open flames cannot be used with vehicles carrying explosives or inflammables.
16 - All vehicles carrying inflammable liquids and compressed inflammable gases must carry electric or reflector flares.
17 - Other than truck-tractors.
18 - Two semaphores permitted on vehicles having no electrical system.
19 - Carrying inflammables or explosives.
20 - Other than a commercial tractor to which a trailer or semi-trailer is attached.
21 - Those that require direction signals. 22 - Cannot be used for driving purposes.
23 - To left of axis of vehicle. 24 - At top corners.
25 - All trailers and semi-trailers over 1,000 lbs. capacity. Where combination is over 30' long, one lamp on left side visible from both sides must be used.
26 - When 3 are used, front ones must be located at top and bottom.
27 - Every vehicle which has a windshield.
28 - One combination clearance and marker lamp required on rearmost support for load - each side. Must show red to rear and side and amber to front.
29 - Except passenger cars and commercial motor vehicles of over 8,500 lbs. capacity.
30 - Two (2) on all tractors and pole-trailers and on all trailers and semi-trailers of over 3,000 lbs. gross weight if narrower than tractor cab.
31 - On all buses and trucks of over 80" wide and on all trailers and semi-trailers of over 30' long and over 3,000 lbs. gross weight if wider than tractor cab.
32 - And on wreckers and tow cars. 33 - Except private passenger cars.
34 - EMV or VET subject to special speed restrictions.

# STATISTICS

## TRUCK AND TRAILER PRODUCTION AND REGISTRATION DATA

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## 1946 and 1947 Truck Trailer Production*

| | 1946 | 1947 |
|---|---|---|
| Vans: | | |
| Insulated and refrigerated .. | 3,384 | 1,853 |
| Furniture | 1,652 | 998 |
| All other closed top | 27,586 | 18,783 |
| Open Top | 2,029 | 1,617 |
| Total Vans | 34,651 | 23,251 |
| Platforms: | | |
| With cattle and stake racks | 8,183 | 3,317 |
| With grain bodies | --- | 1,255 |
| All other | 11,762 | 7,871 |
| Total Platform | 19,945 | 12,443 |
| Tanks: | | |
| Petroleum | 1,799 | 2,437 |
| All other | 827 | 865 |
| Total Tanks | 2,626 | 3,302 |
| Pole and Logging: | | |
| Single axle | 5,970 | 4,103 |
| Tandem Axle | 1,598 | 1,545 |
| Total | 7,568 | 5,648 |
| Low-bed heavy haulers | 1,976 | 2,418 |
| Off-highway | 619 | 808 |
| Dump trailers | 697 | 617 |
| All other trailers | 2,537 | 1,464 |
| Total Trailers | 70,619 | 49,951 |
| Chassis for trailers | 5,615 | 3,161 |
| Total Trailers and Chassis | 76,234 | 53,112 |

* Data from Industry Division Bureau of the Census.

## Civilian Truck Trailer Production

---By Years*

| Year | Number |
|---|---|
| 1939 | 24,182 |
| 1940 | 27,118 |
| 1941 | 41,689 |
| 1942 | 8,408 |
| 1943 | 8,054 |
| 1944 | 24,092 |
| 1945 | 33,266 |
| 1946 | 70,619 |
| 1947 | 49,951 |

* War Production Board and Bureau of the Census.

## Trailer Registrations

(As of Dec. 31, 1947)

| STATES | TRAILERS: House or Tourist | TRAILERS: Commercial | TRAILERS: Total all Trailers |
|---|---|---|---|
| Alabama | ... | ... | 7,899 |
| Arizona | 10,516 | 6,121 | 16,637 |
| Arkansas | ... | ... | 23,601 |
| California | ... | ... | 348,743 |
| Colorado | ... | ... | 7,311 |
| Connecticut | 12,118 | 5,442 | 17,560 |
| Delaware | ... | ... | 2,965 |
| District of Columbia | ... | ... | 1,403 |
| Florida | 5,388 | 50,921 | 56,309 |
| Georgia | 17,474 | 8,494 | 25,968 |
| Idaho | 27,382 | 809 | 28,191 |
| Illinois | ... | ... | 50,000 |
| Indiana | ... | ... | 114,754 |
| Iowa | ... | ... | 121,757 |
| Kansas | ... | ... | 13,929 |
| Kentucky | ... | ... | ... |
| Louisiana | 1,427 | 29,428 | 30,855 |
| Maine | ... | ... | 16,070 |
| Maryland | ... | ... | 12,000 |
| Massachusetts | ... | ... | 43,644 |
| Michigan | 13,156 | 204,041 | 217,197 |
| Minnesota | 41,579 | 11,794 | 53,373 |
| Mississippi | 12,133 | 1,598 | 13,731 |
| Missouri | ... | ... | 72,864 |
| Montana | ... | ... | 5,576 |
| Nebraska | 2,400 | 6,000 | 8,400 |
| Nevada | ... | ... | 3,800 |
| New Hampshire | ... | ... | 8,530 |
| New Jersey | ... | ... | 22,787 |
| New Mexico | ... | ... | 5,365 |
| New York | ... | ... | 98,000 |
| North Carolina | ... | ... | 69,023 |
| North Dakota | 998 | 442 | 1,440 |
| Ohio | ... | ... | 184,792 |
| Oklahoma | ... | ... | 9,271 |
| Oregon | 1 | 1 | 1 |
| Pennsylvania | ... | ... | 76,659 |
| Rhode Island | ... | ... | 3,266 |
| South Carolina | ... | ... | 9,430 |
| South Dakota | 678 | 31,006 | 31,684 |
| Tennessee | ... | ... | ... |
| Texas | ... | ... | 100,000 |
| Utah | ... | ... | 1,363 |
| Vermont | ... | ... | 4,880 |
| Virginia | 18,981 | 9,369 | 28,350 |
| Washington | ... | ... | 60,000 |
| West Virginia | 6,948 | 871 | 7,819 |
| Wisconsin | 3,346 | 8,025 | 11,371 |
| Wyoming | ... | ... | 12,086 |
| Total | ... | ... | 2,061,633 |

1 Included with trucks. The trailer table was compiled by Commercial Car Journal from material secured direct from the motor vehicle commissioners of the various states. Most states do not segregate Commercial trailers.

## Truck Dealers, Wholesalers, Independent Repair Shops*

| | Total Truck Dealers | Wholesalers | Independent Repair Shops |
|---|---|---|---|
| 1928 | 23,869 | 3,796 | 37,615 |
| 1929 | 24,066 | 3,912 | 43,863 |
| 1930 | 25,436 | 4,028 | 47,882 |
| 1931 | 26,137 | 4,668 | 53,898 |
| 1932 | 25,952 | 5,051 | 58,045 |
| 1933 | 23,746 | 5,337 | 59,547 |
| 1934 | ... | 5,430 | 65,064 |
| 1935 | ... | 5,757 | 64,518 |
| 1936 | 23,045 | 5,905 | 60,574 |
| 1937 | 24,853 | 5,874 | 56,423 |
| 1938 | 27,248 | 5,934 | 51,709 |
| 1939 | 26,909 | 6,019 | 50,406 |
| 1940 | 24,575 | 6,176 | 49,091 |
| 1941 | 24,992 | 6,575 | 49,208 |
| 1942 | 32,291 | 6,631 | 47,552 |
| 1943 | 27,820 | 6,130 | 43,540 |
| 1944 | ... | 6,101 | 42,186 |
| 1945 | 26,370 | 6,217 | 41,193 |
| 1946 | 27,159 | 6,612 | 42,702 |
| 1947 | 29,397 | 7,328 | 49,485 |
| 1948 | 25,998 | 7,982 | 55,694 |

* Trade List Department, Chilton Company.

## Wholesale Value of Repair Parts and Accessories Production*

| Year | Wholesale Value |
|---|---|
| 1933 | $ 234,461,000 |
| 1934 | 304,642,000 |
| 1935 | 378,323,000 |
| 1936 | 448,527,000 |
| 1937 | 484,619,000 |
| 1938 | 348,068,000 |
| 1939 | 454,673,000 |
| 1940 | 553,004,000 |
| 1941 | 718,212,000 |
| 1942 | 471,957,000 |
| 1943 | 527,710,000 |
| 1944 | 816,724,000 |
| 1945 | 1,284,926,000 |
| 1946 | 1,752,918,000 |
| 1947 | 2,503,220,000 |

* Estimated on basis of excise tax receipts.

# TOTAL TRUCK REGISTRATIONS BY STATES

| | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 34,101 | 38,989 | 44,272 | 53,070 | 50,780 | 54,947 | 58,707 | 65,909 | 66,025 | 65,606 | 67,723 | 72,141 | 86,441 | 108,251 |
| Arizona | 16,791 | 17,964 | 20,183 | 22,973 | 22,998 | 24,083 | 25,243 | 28,889 | 28,093 | 27,020 | 27,211 | 29,462 | 35,044 | 42,295 |
| Arkansas | 35,700 | 40,107 | 50,131 | 59,263 | 53,789 | 60,535 | 66,158 | 77,191 | 75,257 | 71,916 | 74,459 | 78,902 | 94,450 | 110,480 |
| California | 237,566 | 253,908 | *266,379 | *284,132 | *300,463 | ‡309,855 | *326,998 | *350,261 | *344,565 | *327,204 | ‡327,375 | ‡355,282 | ‡405,729 | ‡487,929 |
| Colorado | 27,658 | 28,430 | *31,930 | 32,795 | 31,447 | 30,636 | 30,298 | 31,044 | 31,784 | †68,687 | 70,524 | 76,837 | 90,543 | 101,953 |
| Connecticut | 55,878 | 62,232 | 60,853 | 66,070 | 63,910 | 66,273 | 74,455 | 79,256 | 54,916 | 61,423 | 60,896 | 58,851 | 75,266 | 77,093 |
| Delaware | *9,384 | *9,692 | *10,010 | *10,314 | *10,519 | *11,248 | *11,030 | *13,969 | *13,416 | *13,576 | *14,371 | 13,162 | 14,296 | 15,913 |
| District of Col. | 17,263 | 17,610 | 19,397 | 18,862 | 14,267 | 13,718 | 13,928 | 13,809 | 14,648 | 15,037 | 13,563 | 13,879 | 14,405 | 15,588 |
| Florida | 55,359 | 57,199 | 65,738 | 70,308 | 71,871 | 76,320 | 79,790 | 87,706 | 80,919 | 84,132 | 88,053 | 96,384 | 120,525 | 138,317 |
| Georgia | 60,262 | 66,079 | 73,269 | 78,803 | 76,154 | 85,520 | 91,321 | 99,506 | 96,655 | 93,817 | 97,553 | 104,850 | 126,403 | 150,108 |
| Idaho | 17,861 | 21,371 | 25,852 | 28,208 | 27,809 | 31,380 | 33,538 | 36,515 | 34,807 | 35,724 | †35,533 | 38,352 | 40,000 | 51,137 |
| Illinois | *174,265 | *185,477 | *208,926 | *220,639 | *222,582 | *232,888 | *228,689 | *234,703 | *233,385 | *221,634 | 216,930 | 224,929 | 253,385 | 312,500 |
| Indiana | 122,791 | 132,767 | 131,767 | 140,292 | 122,168 | 129,695 | 134,215 | 135,834 | 138,648 | 124,195 | 137,252 | 137,809 | 163,859 | 183,456 |
| Iowa | 75,350 | 80,529 | 82,840 | 86,636 | *92,884 | *93,139 | *101,244 | *108,985 | *103,487 | *103,509 | 98,373 | 102,176 | 115,984 | 133,868 |
| Kansas | 75,565 | *80,068 | *87,113 | *93,046 | *97,744 | *98,616 | *102,665 | 113,872 | 119,725 | 119,168 | 121,819 | 129,353 | 147,296 | 167,366 |
| Kentucky | 37,445 | 43,613 | 51,840 | 59,341 | 63,373 | 69,629 | 75,891 | 81,663 | 77,412 | 73,107 | 76,603 | 82,017 | 101,541 | 110,000 |
| Louisiana | 44,779 | 59,398 | 76,251 | 80,630 | 80,167 | 84,475 | 81,793 | 93,305 | 73,338 | 70,691 | 72,015 | 78,256 | 98,117 | 113,177 |
| Maine | 37,693 | 38,079 | 39,276 | 43,171 | 42,663 | 41,673 | 43,914 | 45,748 | 42,074 | 41,959 | 44,527 | 48,891 | 56,769 | 61,001 |
| Maryland | 45,351 | 46,528 | 53,398 | 52,014 | 53,926 | 58,027 | 59,160 | 60,876 | 60,527 | 61,672 | 53,319 | 65,090 | 81,648 | 86,000 |
| Massachusetts | 98,508 | 100,411 | 102,400 | 104,316 | 104,134 | 106,624 | 109,462 | 110,650 | 109,783 | 104,253 | ▲103,606 | ▲111,417 | ▲131,071 | 144,113 |
| Michigan | *123,405 | *127,283 | *139,520 | *146,117 | *139,630 | *147,360 | *152,735 | *163,264 | *151,053 | *158,656 | 156,174 | 167,677 | 194,546 | 220,974 |
| Minnesota | 103,882 | 105,661 | 114,448 | 117,632 | 115,870 | 116,227 | 124,602 | 129,719 | 123,213 | 116,026 | 113,566 | 115,906 | 130,946 | 148,644 |
| Mississippi | 34,115 | 33,306 | 43,357 | 53,072 | 51,486 | 57,097 | 60,927 | 64,119 | 51,744 | 60,900 | 65,760 | 68,988 | 95,536 | 109,103 |
| Missouri | 107,709 | 115,819 | *128,425 | *134,457 | *133,666 | *141,609 | *152,924 | *164,546 | *159,342 | 148,608 | 143,867 | 157,084 | 188,394 | 209,997 |
| Montana | *31,087 | *35,542 | *39,311 | *40,081 | *41,138 | *44,480 | *47,964 | *51,476 | *46,695 | *45,380 | 46,730 | 48,260 | 54,947 | 63,871 |
| Nebraska | 56,560 | 59,054 | 62,133 | 63,667 | 66,988 | 65,632 | 68,016 | 71,283 | 70,328 | 71,726 | 72,544 | 75,554 | 87,121 | 91,000 |
| Nevada | 6,391 | 6,875 | *7,580 | *8,092 | *7,525 | 5,811 | 6,571 | 9,524 | 10,037 | 9,850 | 9,520 | 9,193 | 10,778 | 12,595 |
| New Hampshire | 22,382 | 23,455 | *22,023 | 23,768 | *23,587 | *24,964 | 30,062 | 32,118 | 32,589 | *27,195 | 27,240 | 23,483 | 28,872 | 31,227 |
| New Jersey | 123,351 | 124,866 | 130,542 | 134,458 | 132,714 | 132,819 | 137,126 | 141,329 | 140,928 | 135,529 | 138,937 | 148,000 | 167,506 | 186,939 |
| New Mexico | 16,112 | 18,245 | 22,731 | 31,117 | 26,915 | 28,488 | 30,090 | 30,806 | 28,559 | 28,645 | 27,826 | 29,640 | 35,179 | 41,000 |
| New York | 298,379 | 306,919 | 326,404 | 333,543 | 327,474 | 350,693 | 363,110 | 348,819 | 330,323 | 310,258 | 282,091 | 354,052 | 370,709 | 396,368 |
| North Carolina | 54,766 | 57,931 | 65,000 | 73,383 | 74,211 | 81,068 | 87,457 | 96,320 | 93,922 | 95,600 | 93,063 | 97,500 | 123,748 | 146,503 |
| North Dakota | 26,315 | 28,780 | 29,650 | 32,084 | 33,061 | 34,544 | 37,019 | 40,788 | 41,935 | 44,397 | 46,946 | 48,262 | 53,858 | 60,777 |
| Ohio | *159,845 | *170,954 | *172,273 | *180,484 | *177,314 | *184,223 | *190,854 | *192,000 | *193,325 | 185,586 | 144,484 | 196,810 | 242,603 | 261,508 |
| Oklahoma | 73,928 | 82,855 | 90,638 | 98,675 | 92,943 | 98,172 | 103,391 | 107,903 | 109,586 | 101,969 | 102,383 | 109,896 | 128,124 | 143,533 |
| Oregon | 41,411 | 42,584 | 48,746 | 60,660 | 59,829 | 62,748 | 67,756 | 75,538 | 75,217 | 74,724 | 77,773 | 82,408 | 99,025 | 115,845 |
| Pennsylvania | 215,016 | 229,026 | 248,637 | 257,330 | 255,654 | 269,062 | 263,112 | 274,967 | 274,745 | 275,052 | 276,072 | 304,972 | 342,172 | 388,711 |
| Rhode Island | 18,332 | 18,428 | 19,458 | 19,768 | 20,010 | 19,699 | 20,743 | 21,174 | 21,876 | 20,575 | 20,985 | 22,607 | 26,959 | 28,036 |
| South Carolina | 20,877 | 29,761 | 33,525 | 39,835 | 41,379 | 44,142 | 39,070 | 50,638 | 48,341 | 48,257 | 45,701 | 48,047 | 64,158 | 80,296 |
| South Dakota | 23,832 | 26,931 | 28,172 | 28,768 | 28,484 | 30,282 | 32,298 | 34,952 | 34,656 | 35,028 | 35,590 | 37,149 | 42,163 | 50,703 |
| Tennessee | 37,755 | 42,031 | 48,368 | 55,736 | 61,724 | 67,053 | 70,687 | 81,022 | 74,285 | 71,701 | 73,650 | 77,134 | 99,517 | 119,000 |
| Texas | 226,276 | 257,055 | 285,839 | 294,639 | 316,757 | 335,467 | 350,208 | 368,863 | 297,526 | 287,223 | 286,669 | 307,555 | 379,158 | 450,000 |
| Utah | 17,103 | 17,567 | 22,000 | 21,094 | 22,432 | 25,209 | 23,534 | 24,208 | 24,905 | 25,549 | 25,836 | 28,748 | 31,267 | 35,487 |
| Vermont | 8,612 | 9,031 | 8,682 | 9,029 | 9,042 | 9,576 | 9,628 | 10,327 | 9,858 | 10,207 | 10,806 | 11,867 | 13,570 | 14,894 |
| Virginia | 57,268 | 60,376 | 57,689 | 67,547 | 66,410 | 68,723 | 74,720 | 83,594 | 83,048 | 80,878 | 82,912 | 94,286 | 116,084 | 132,413 |
| Washington | 64,321 | 68,657 | 79,500 | 84,577 | 83,204 | 85,484 | 93,395 | 94,772 | 93,517 | 94,042 | 96,168 | 103,762 | 117,173 | 150,000 |
| West Virginia | 27,253 | 29,305 | 36,908 | 44,558 | 43,785 | 48,289 | 51,520 | 48,541 | 48,321 | 47,124 | 51,381 | 55,512 | 66,612 | 74,561 |
| Wisconsin | 120,180 | 130,144 | 150,779 | 145,822 | 135,413 | 141,590 | 147,661 | 158,087 | 143,087 | 135,643 | 139,186 | 142,240 | 160,940 | 181,443 |
| Wyoming | 13,102 | 14,593 | 15,592 | 17,368 | 17,589 | 18,090 | 19,062 | 20,474 | 20,192 | 20,014 | 20,472 | 21,436 | 24,105 | 27,341 |
| TOTALS | 3,409,336 | 3,655,705 | 3,981,755 | 4,107,244 | §4,210,022 | §4,419,893 | §4,604,772 | §4,859,653 | §4,644,210 | §4,548,882 | 4,518,157 | 4,906,578 | 5,749,643 | 6,583,314 |

* Includes buses. Includes taxicabs. § Revises. ▲ Includes trailers and semi-trailers. † Large increase due to reclassification of trucks previously carried as passenger cars. ‡ Includes light commercial vehicles registered as passenger cars.

# NEW TRUCK REGISTRATIONS BY MAKES, BY YEARS*

| | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941†† | 1942‡ | 1946 | 1947 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Autocar | 1,127 | 1,139 | 1,001 | 1,451 | 2,181 | 1,617 | 2,044 | 1,955 | 2,510 | 319 | 4,755 | 4,344 |
| Brockway | 875 | 1,213 | 1,245 | 1,695 | 1,593 | 1,303 | 1,815 | 1,672 | 2,294 | 171 | 3,683 | 4,255 |
| Chevrolet | 99,880 | 157,507 | 167,128 | 204,344 | 183,674 | 119,479 | 169,457 | 194,038 | 212,797 | 11,250 | 171,618 | 235,803 |
| Diamond T | 4,139 | 5,440 | 6,454 | 8,750 | 8,118 | 4,393 | 5,412 | 6,358 | 6,077 | 530 | 5,093 | 10,475 |
| Divco | 200 | 254 | 398 | 964 | 1,125 | 1,229 | 1,481 | 1,662 | 2,306 | 180 | 3,734 | 4,893 |
| Dodge | 28,034 | 43,252 | 61,438 | 85,285 | 64,098 | 33,656 | 48,049 | 54,615 | 62,925 | 4,736 | 96,490 | 126,736 |
| Federal | 1,360 | 1,962 | 2,190 | 2,930 | 2,339 | 1,370 | 1,837 | 1,617 | 1,611 | 175 | 4,557 | 6,020 |
| Ford | 62,397 | 128,250 | 185,848 | 177,244 | 189,375 | 100,959 | 128,889 | 162,333 | 174,024 | 11,050 | 131,469 | 186,414 |
| F. W. D. | 71 | 156 | 212 | 369 | 435 | 274 | 182 | 252 | 280 | 75 | 585 | 1,195 |
| G. M. C. | 6,602 | 10,449 | 11,442 | 26,980 | 43,522 | 20,152 | 34,908 | 42,436 | 45,703 | 3,429 | 25,645 | 49,187 |
| Hudson | ... | ... | 638 | 1,905 | 4,823 | 719 | 409 | 761 | 736 | 33 | 2,543 | 2,534 |
| Indiana | 1,252 | 729 | 862 | 1,705 | 1,371 | 435 | 178 | ... | ... | ... | ... | ... |
| International | 26,658 | 31,555 | 53,471 | 71,958 | 76,174 | 55,836 | 66,048 | 77,891 | 92,482 | 7,316 | 78,392 | 113,151 |
| Kenworth | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 487 |
| Mack | 1,652 | 1,830 | 1,515 | 4,226 | 5,513 | 4,406 | 6,670 | 7,754 | 9,468 | 767 | 4,687 | 10,917 |
| Oshkosh | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 245 |
| Peterbilt | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 195 |
| Plymouth | ... | ... | 660 | 2,420 | 13,709 | 6,652 | 8,294 | 9,573 | 7,732 | 137 | 28 | ... |
| Reo | 3,042 | 5,035 | 5,101 | 4,227 | 4,254 | 2,929 | 853 | 625 | 1,543 | 156 | 10,489 | 12,911 |
| Sterling | 108 | 134 | 174 | 277 | 311 | 267 | 326 | 341 | 400 | 37 | 510 | 576 |
| Stewart | 684 | 736 | 880 | 1,280 | 1,148 | 390 | 70 | ... | ... | ... | ... | ... |
| Studebaker | 1,872 | 1,697 | 2,100 | 3,279 | 5,128 | 2,000 | 2,110 | 1,207 | 5,078 | 394 | 25,360 | 41,861 |
| Ward La France | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 509 |
| White | 1,384 | 3,961 | 3,304 | 5,757 | 5,933 | 3,514 | 4,558 | 7,344 | 9,271 | 933 | 10,117 | 13,086 |
| Willys | *233 | 25 | 2,280 | 2,461 | 1,122 | 1,889 | 1,634 | 2,291 | 2,031 | 92 | 42,135 | 49,819 |
| All Others | 4,259 | 3,560 | 2,291 | 2,147 | 2,301 | 1,880 | 1,524 | 1,552 | 1,429 | 158 | 3,359 | 3,528 |
| Total | 245,869 | 403,886 | 510,683 | 611,844 | 618,249 | 365,349 | 486,748 | 576,327 | 640,697 | 41,946‡ | 625,249 | 879,132 |

*Data from R. L. Polk & Co. Data for the 1943 and 1944 and 1945 War Years were not compiled. ††Does not include Federal Government registrations which are includes to previous years. First three months only. Does not include Connecticut for month of March.

# TOTAL U. S. TRUCK REGISTRATIONS, BY YEARS (1904-1947)

| | | % Gain | | | % Gain | | | % Gain | | | % Gain | | | % Gain |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1904 | 410 | ... | 1912 | 41,400 | 107 | 1921 | 1,117,100 | 11 | 1930 | 3,486,019 | 3 | 1939 | 4,419,893 | 5.0 |
| 1905 | 600 | 46 | 1913 | 63,800 | 54 | 1922 | 1,375,725 | 23 | 1931 | 3,456,571 | -.8 | 1940 | 4,604,772 | 4.2 |
| 1906 | 1,100 | 83 | 1914 | 85,600 | 34 | 1923 | 1,612,569 | 17 | 1932 | 3,229,315 | -.7 | 1941 | 4,859,653 | 5.5 |
| 1907 | 1,700 | 55 | 1915 | 136,000 | 59 | 1924 | 2,134,724 | 32 | 1933 | 3,227,357 | -0.6 | 1942 | 4,644,210 | -4.4 |
| 1908 | 3,100 | 82 | 1916 | 215,000 | 58 | 1925 | 2,440,854 | 14 | 1934 | 3,409,335 | 5.5 | 1943 | 4,548,882 | -2.0 |
| 1909 | 6,050 | 95 | 1917 | 326,000 | 52 | 1926 | 2,764,222 | 13 | 1935 | 3,655,705 | 7.1 | 1944 | 4,518,157 | -0.7 |
| 1910 | 10,000 | 65 | 1918 | 525,000 | 61 | 1927 | 2,914,019 | 5 | 1936 | 3,981,755 | 9.1 | 1945 | 4,906,578 | 8.8 |
| 1911 | 20,000 | 100 | 1919 | 794,372 | 51 | 1928 | 3,113,999 | 7 | 1937 | 4,107,244 | 3.1 | 1946 | 5,749,643 | 17.1 |
| | | | 1920 | 1,006,382 | 27 | 1929 | 3,379,854 | 8 | 1938 | 4,210,022 | 2.5 | 1947 | 6,583,314 | 14.7 |

# NEW TRUCK REGISTRATIONS BY MONTHS, BY YEARS

| | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941†† | 1942§ | 1943§ | 1944§ | 1945§ | 1946 | 1947 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 22,903 | 34,759 | 43,760 | 47,618 | 31,995 | 37,715 | 45,650 | 50,830 | 23,356 | 4,627 | 8,577 | 17,650 | ... | 62,477 |
| February | 24,476 | 34,797 | 40,301 | 41,843 | 27,551 | 34,102 | 41,336 | 50,124 | 10,311 | 6,083 | 8,231 | 17,676 | ... | 63,752 |
| March | 33,884 | 41,511 | 52,428 | 60,301 | 37,255 | 45,083 | 53,083 | 62,413 | 8,277 | 8,280 | 6,726 | 19,710 | 87,375• | 79,344 |
| April | 38,882 | 46,785 | 64,956 | 67,832 | 35,682 | 46,083 | 55,982 | 64,238 | 17,497 | 7,010 | 11,390 | 19,718 | 40,920 | 85,148 |
| May | 39,831 | 47,968 | 62,183 | 65,857 | 32,937 | 45,381 | 51,553 | 64,177 | 12,473 | 8,025 | 14,807 | 26,663 | 56,285 | 76,901 |
| June | 34,768 | 48,243 | 56,851 | 58,626 | 30,647 | 40,482 | 43,504 | 62,265 | 9,535 | 7,267 | 15,263 | 28,759 | 46,488 | 65,458 |
| July | 37,490 | 51,243 | 63,695 | 61,686 | 33,475 | 44,747 | 50,913 | 67,412 | 9,756 | 8,474 | 10,728 | 34,431 | 53,657 | 71,647 |
| August | 40,790 | 50,355 | 59,222 | 60,872 | 34,231 | 43,523 | 48,980 | 66,191 | 7,615 | 9,254 | 18,044 | 227,628 | 62,820 | 75,912 |
| September | 37,225 | 41,390 | 54,511 | 54,711 | 26,570 | 32,983 | 39,224 | 43,892 | 8,956 | 8,454 | 12,386 | ‡ | 69,565 | 69,899 |
| October | 40,878 | 37,439 | 41,220 | 40,246 | 19,589 | 37,923 | 48,356 | 41,352 | 8,336 | 6,473 | 12,602 | ‡ | 74,708 | 87,167 |
| November | 28,689 | 36,935 | 30,225 | 27,248 | 23,943 | 41,286 | 46,618 | 38,799 | 4,854 | 5,007 | 12,981 | ‡ | 63,978 | 73,737 |
| December | 24,070 | 39,258 | 42,192 | 31,409 | 31,474 | 37,460 | 51,095 | 41,006 | 4,744 | 2,094 | 16,730 | ‡ | 69,453 | 67,690 |
| Total | 403,886 | 510,683 | 611,644 | 618,249 | 395,349 | 486,748 | 576,327† | 640,698 | 125,710§ | 81,077§ | 146,465§ | 392,233§ | 625,249 | 879,132 |

† Contains 23 delinquent registrations which cannot be assigned to any one month. †† Does not include Federal Government deliveries which are included in other years. * Source: - R. L. Polk & Co. § R. L. Polk & Co. new registrations for first three months of 1942. Remainder of 1942 and entire years of 1943, 1944 and 1945 are Commercial Trucks Rationed on Government Exemption Permits and Certificates of Transfer by WPB and ODT. It is assumed that all certificates were cashed.
‡ Certificates no longer issued and therefore no record of permits or sales. • Total for Jan., Feb. and March.

# TRUCK PRODUCTION (U.S.) BY MONTHS, BY YEARS*

| | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 † | 1943 † | 1944 † | 1945 † | 1946 | 1947 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 42,912 | 62,174 | 86,250 | 70,109 | 53,823 | 60,703 | 69,382 | 89,645 | 93,181 | 40,612 | 58,827 | 67,394 | 45,033 | 99,818 |
| February | 43,482 | 58,655 | 83,331 | 87,405 | 47,151 | 60,220 | 66,276 | 91,109 | 77,269 | 47,546 | 55,916 | 64,510 | 34,993 | 105,042 |
| March | 59,160 | 66,503 | 78,052 | 90,242 | 47,580 | 72,243 | 70,698 | 97,638 | 89,537 | 55,979 | 56,695 | 75,057 | 37,666 | 118,234 |
| April | 64,620 | 65,778 | 86,243 | 96,170 | 43,032 | 63,966 | 70,607 | 87,293 | 64,157 | 56,173 | 56,071 | 67,579 | 80,792 | 106,984 |
| May | 56,691 | 55,560 | 75,591 | 91,487 | 37,101 | 59,672 | 65,539 | 101,072 | 61,064 | 55,190 | 57,287 | 71,267 | 75,373 | 96,430 |
| June | 45,197 | 62,158 | 77,631 | 85,898 | 38,139 | 63,034 | 58,596 | 101,542 | 73,732 | 56,516 | 61,479 | 66,456 | 60,038 | 91,620 |
| July | 41,839 | 57,765 | 68,809 | 78,568 | 31,602 | 58,621 | 62,934 | 100,485 | 63,885 | 60,285 | 61,921 | 54,563 | 87,591 | 97,755 |
| August | 51,311 | 56,270 | 61,923 | 82,874 | 31,870 | 38,461 | 29,050 | 69,072 | 59,526 | 61,321 | 69,015 | 44,779 | 97,881 | 86,486 |
| September | 44,967 | 31,443 | 45,064 | 52,542 | 18,375 | 27,132 | 44,638 | 66,465 | 59,857 | 57,582 | 65,605 | 31,572 | 95,682 | 110,720 |
| October | 47,988 | 58,733 | 34,446 | 31,214 | 22,018 | 61,573 | 72,009 | 86,441 | 56,743 | 60,160 | 64,723 | 42,225 | 107,166 | 118,365 |
| November | 34,462 | 58,145 | 53,902 | 64,727 | 52,069 | 66,533 | 80,261 | 96,246 | 51,628 | 57,168 | 69,497 | 53,634 | 100,929 | 87,611 |
| December | 42,563 | 61,506 | 73,345 | 81,849 | 62,340 | 78,338 | 87,036 | 107,243 | 54,685 | 59,583 | 72,165 | 29,542 | 107,616 | 101,569 |
| Total | 575,192 | 694,690 | 784,587 | 893,085 | 488,100 | 710,496 | 777,026 | 1,094,261 | 805,264 | 677,115 | 749,201 | 668,578 | 930,760 | 1,220,634 |

* Bureau of Census data for 1933 through 1941 and representing factory sales. WPB records for 1942 through 1945. † These data cover actual production of trucks for military and civilian use. Jeeps, military ambulances and all wheel-drive personnel carriers are included. To these have been added integral buses except for 1945, bus data for which were not available.

# TRUCK PRODUCTION (U.S.) BY CAPACITIES, 1936-1945

| | TOTAL All Weights | | | LIGHT Under 9000 lb.G.V.W. | | | MEDIUM 9,000 to 15,999 lb.G.V.W. | | | HEAVY 16,000 lb. and Over | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Civilian | Military | Total | Civilian | Military | Total | Civilian | Military | Total | Civilian | Military | Total |
| 1936 | 770,629 | 2,725 | 773,354 | 317,189 | 1,004 | 318,193 | 417,395 | 1,125 | 418,520 | 36,045 | 596 | 36,641 |
| 1937 | 872,118 | 1,703 | 873,821 | 396,326 | 368 | 396,694 | 437,525 | 1,266 | 438,791 | 38,267 | 69 | 38,336 |
| 1938 | 478,307 | 2,248 | 480,555 | 208,575 | 690 | 209,265 | 248,886 | 1,119 | 250,005 | 20,846 | 439 | 21,285 |
| 1939 | 685,296 | 6,188 | 691,484 | 306,098 | 1,651 | 307,749 | 343,190 | 2,900 | 346,090 | 36,008 | 1,637 | 37,645 |
| 1940 | 700,101 | 55,389 | 755,490 | 337,983 | 13,365 | 351,348 | 323,088 | 36,042 | 359,130 | 39,030 | 5,982 | 45,012 |
| 1941 | 823,205 | 218,657 | 041,862 | 367,467 | 72,164 | 439,631 | 408,367 | 128,170 | 536,537 | 47,371 | 18,323 | 65,694 |
| 1942 | 125,294 | 671,633 | 796,927 | 23,427 | 277,413 | 300,840 | 86,072 | 169,188 | 255,260 | 15,795 | 225,032 | 240,827 |
| 1943 | 2,888 | 672,614 | 675,502 | 0 | 268,438 | 268,438 | 179 | 154,808 | 154,987 | 2,709 | 249,368 | 252,077 |
| 1944 | 119,081 | 624,669 | 743,750 | 0 | 247,113 | 247,113 | 87,990 | 87,380 | 175,370 | 31,091 | 290,176 | 321,267 |
| 1945 | 313,643 | 354,935 | 668,578 | 72,197 | 132,574 | 204,771 | 183,948 | 24,232 | 208,180 | 57,498 | 198,129 | 255,627 |

Source-War Production Board, Automotive Division. These data cover actual production of trucks for civilian and military uses. They differ from the "factory sales" figures accepted as an index of production before the war. Jeeps, military ambulances and wheel drive personnel carriers are included; half-tracks, armored cars and integral buses are excluded. *Source-Automobile Manufacturers Association. Not comparable with other years as light trucks are under 10,000 lb., medium are 10,000 to 16,000 lb.

# TRUCK FACTORY SALES BY GROSS VEHICLE WEIGHTS

| | 5,000 & Less | 5,001-10,000 | 10,001-14,000 | 14,001-16,000 | 16,001-19,500 | 19,501-26,000 | Over 26,000 | Total |
|---|---|---|---|---|---|---|---|---|
| **Total Factory Sales from U. S. Plants** | | | | | | | | |
| 1946 | 330,733 | 88,235 | 258,126 | 190,378 | 24,142 | 25,252 | 13,894 | 930,760 |
| 1947 | 375,445 | 182,490 | 265,989 | 285,589 | 41,606 | 42,761 | 26,754 | 1,220,634 |
| **Factory Sales for Domestic Use** | | | | | | | | |
| 1946 | 291,827 | 78,925 | 182,000 | 137,054 | 19,293 | 22,474 | 13,058 | 744,631 |
| 1947 | 314,662 | 165,707 | 197,275 | 198,705 | 34,660 | 36,723 | 23,873 | 791,605 |

Source - Automobile Manufacturers' Association

# TRUCKS AND BUSES MANUFACTURED IN 44 YEARS

## (U.S. Truck and Bus Factory Sales & Their Wholesale Value)

| Year | Units | Wholesale Value |
|---|---|---|
| 1904 | 700 | $ 1,272,747 |
| 1905 | 750 | 1,330,000 |
| 1906 | 800 | 1,440,000 |
| 1907 | 1,000 | 1,780,000 |
| 1908 | 1,500 | 2,550,000 |
| 1909 | 3,297 | 5,333,583 |
| 1910 | 6,000 | 9,660,000 |
| 1911 | 10,681 | 21,000,000 |
| 1912 | 22,000 | 43,000,000 |
| 1913 | 23,500 | 44,000,000 |
| 1914 | 24,900 | 44,219,096 |
| 1915 | 74,000 | 125,800,000 |
| 1916 | 92,130 | 161,000,000 |
| 1917 | 128,157 | 220,982,668 |
| 1918 | 227,250 | 434,168,992 |
| 1919 | 224,731 | 371,422,820 |
| 1920 | 321,789 | $ 423,249,410 |
| 1921 | 148,052 | 166,070,810 |
| 1922 | 269,991 | 226,049,658 |
| 1923 | 409,295 | 308,537,929 |
| 1924 | 416,659 | 318,580,580 |
| 1925 | 530,659 | 458,400,277 |
| 1926 | 316,947 | 452,123,435 |
| 1927 | 464,793 | 420,130,624 |
| 1928 | 543,342 | 437,132,256 |
| 1929 | 771,020 | 566,029,644 |
| 1930 | 571,241 | 389,436,690 |
| 1931 | 416,646 | 262,417,542 |
| 1932 | 235,187 | 136,193,336 |
| 1933 | 346,545 | 186,069,314 |
| 1934 | 575,192 | 320,143,667 |
| 1935 | 694,690 | $ 379,407,751 |
| 1936** | 784,587 | 462,820,474 |
| 1937 | 893,085 | 542,921,096 |
| 1938 | 488,100 | 339,226,639 |
| 1939 | 710,496 | 502,421,776 |
| 1940 | 754,901 | 577,012,000 |
| 1941 | 060,820 | 1,087,592,000 |
| 1942 | 818,662 | 1,436,162,000 |
| 1943 | 699,889 | 1,453,467,000 |
| 1944 | 737,524 | 1,712,356,000 |
| 1945 | 655,683 | 1,219,957,000 |
| 1946 | 940,851 | 1,090,885,000 |
| 1947 | 1,239,472 | (not available) |
| 44 Years | 17,657,337 | $17,363,803,918 |

# TRUCK PRODUCTION BY MAKES, 1946 & 1947

## BROCKWAY

(Total Truck Production)

| 1946 | 1947 |
|---|---|
| 4,212 | 4,742 |

## CHEVROLET

(Total Truck Production)

| Produced in U. S. Plants for Domestic Delivery | 1946 | 1947 |
|---|---|---|
| Sedan Delivery (Under 5,000 G.V.W.) | 4,189 | 20,476 |
| 1/2 Ton (Under 5,000 G.V.W.) | 82,432 | 76,940 |
| 3/4 and 1 Ton (5,000 to 10,000 G.V.W.) | 11,747 | 49,336 |
| 1½ Ton Conventional (10,000 to 14,000 G.V.W.) | 27,873 | 25,235 |
| 2 Ton C.O.E. and Conventional (14,000 to 16,000 G.V.W.) | 84,051 | 92,907 |
| Total Production for Domestic Distribution | 210,292 | 264,894 |
| Total Production for Export | 59,856 | 70,449 |
| Grand Total Production U. S. Plants | 270,148 | 335,343 |

## FEDERAL

| | 1946 | 1947 |
|---|---|---|
| 10,001 to 14,000 G.V.W. | 1,585 | 2,495 |
| 14,001 to 16,000 G.V.W. | 2,081 | 3,085 |
| 16,001 to 19,500 G.V.W. | 204 | 1,233 |
| 19,501 to 26,000 G.V.W. | 1,820 | 2,765 |
| Over 26,000 G.V.W. | 401 | 480 |
| Total | 6,091 | 10,058 |

## FORD

(U. S. Factory Sales of Trucks)

| | 1946 | 1947 |
|---|---|---|
| 5,000 and less G.V.W. | 71,436 | 67,377 |
| 5,001 to 10,000 G.V.W. | 16,465 | 29,614 |
| 10,001 to 14,000 G.V.W. | 75,771 | 86,851 |
| 14,001 to 16,000 G.V.W. | 32,541 | 57,073 |
| 16,001 to 19,500 G.V.W. | | 60 |
| 19,501 to 26,000 G.V.W. | | 72 |
| Total | 196,213 | 241,047 |

## F.W.D.

| | 1946 | 1947 |
|---|---|---|
| 20,000 lb. G.V.W. | 654 | 1,310 |
| 28,000 lb. G.V.W. | 890 | 642 |
| 38,600 lb. G.V.W. | 80 | 140 |
| 58,000 lb. G.V.W. | 20 | 11 |
| Total | 644 | 2,103 |

## G.M.C. TRUCK

| 1946 | 1947 |
|---|---|
| 33,850 | 61,918 |

## INTERNATIONAL

(U. S. Truck Production)

| | 1946 | 1947 |
|---|---|---|
| Light (Under 9,000 lb. G.V.W.) | 47,160 | 60,998 |
| Medium (9,000 to 15,999 lb. G.V.W.) | 47,193 | 59,397 |
| Light Heavy (16,000 to 26,000 lb. G.V.W.) | 16,919 | 26,647 |
| Heavy Heavy (Over 26,000 lb. G.V.W.) | 2,274 | 5,967 |
| Total | 113,546 | 153,009 |

## OSHKOSH

| | 1946 | 1947 |
|---|---|---|
| Light Heavy (16,000 to 26,000 G.V.W.) | 23 | 60 |
| Heavy Heavy (Over 26,000 G.V.W.) | 250 | 268 |
| Total | 273 | 328 |

## WHITE

(Total Production)

| | 1946 | 1947 |
|---|---|---|
| Commercial | 12,542 | 18,479 |
| Export (*) | (1,110 | 2,131) |
| Canada | 309 | 948 |
| Bus | 633 | 1,086 |
| Total | 13,484 | 20,513 |

(*) Export figures based on shipments. Export erection are included in Commercial erections, and this figure is shown here to give an idea of approximately how many of the Commercial jobs were for the Export Dept.

# New Truck Registrations by Makes, by Gross Weight*

| MAKE | | 5,000 or less | 5,001-10,000 | 10,001-14,000 | 14,001-16,000 | 16,001-19,500 | 19,501-26,000 | 26,001- and over | Total |
|---|---|---|---|---|---|---|---|---|---|
| AUTOCAR | 1947 | ..... | ..... | ..... | ..... | ..... | ..... | 4,334 | 4,334 |
| | 1946 | ..... | ..... | ..... | ..... | ..... | 2,033 | 2,722 | 4,755 |
| BROCKWAY | 1947 | ..... | ..... | ..... | 574 | 120 | 2,437 | 1,124 | 4,255 |
| | 1946 | ..... | ..... | 5 | 896 | 22 | 1,859 | 901 | 3,683 |
| CHEVROLET | 1947 | 87,848 | 40,252 | 25,888 | 82,015 | .... | ..... | ..... | 235,803 |
| | 1946 | 73,097 | 6,980 | 42,533 | 48,008 | .... | ..... | ..... | 171,818 |
| DIAMOND T | 1947 | ..... | 945 | 2,643 | 4,704 | 1,271 | 390 | 522 | 10,475 |
| | 1946 | ..... | 100 | 946 | 2,691 | 900 | 221 | 233 | 5,093 |
| DIVCO | 1947 | ..... | 3,636 | 1,257 | ..... | .... | ..... | ..... | 4,893 |
| | 1946 | ..... | 2,942 | 792 | ..... | .... | ..... | ..... | 3,734 |
| DODGE | 1947 | 36,719 | 32,136 | 35,407 | 17,772 | 3,014 | 1,686 | ..... | 126,736 |
| | 1946 | 43,482 | 11,831 | 29,688 | 11,246 | 202 | 41 | ..... | 96,490 |
| FEDERAL | 1947 | ..... | ..... | 1,068 | 3,143 | 213 | 997 | 599 | 6,020 |
| | 1946 | ..... | ..... | 376 | 3,070 | .... | 561 | 550 | 4,557 |
| FORD | 1947 | 46,365 | 33,533 | 85,057 | 21,459 | .... | ..... | ..... | 186,414 |
| | 1946 | 53,509 | 13,271 | 62,079 | 2,610 | .... | ..... | ..... | 131,469 |
| F. W. D. | 1947 | ..... | ..... | ..... | ..... | 140 | 699 | 356 | 1,195 |
| | 1946 | ..... | ..... | ..... | ..... | 35 | 142 | 408 | 585 |
| G. M. C. | 1947 | 13,511 | 8,016 | 16,693 | 3,883 | 3,577 | 1,743 | 1,784 | 49,187 |
| | 1946 | 7,991 | 65 | 10,574 | 1,625 | 2,602 | 723 | 2,065 | 25,645 |
| HUDSON | 1947 | 2,534 | ..... | ..... | ..... | .... | ..... | ..... | 2,534 |
| | 1946 | 2,543 | ..... | ..... | ..... | .... | ..... | ..... | 2,543 |
| INTERNATIONAL | 1947 | 20,925 | 27,044 | 32,301 | 12,484 | 11,005 | 5,918 | 3,474 | 113,151 |
| | 1946 | 10,799 | 20,926 | 27,860 | 4,590 | 7,002 | 5,475 | 1,740 | 78,392 |

| MAKE | | 5,000 or less | 5,001-10,000 | 10,001-14,000 | 14,001-16,000 | 16,001-19,500 | 19,501-26,000 | 26,001- and over | Total |
|---|---|---|---|---|---|---|---|---|---|
| KENWORTH | 1947 | ..... | ..... | ..... | ..... | .... | ..... | 487 | 487 |
| | 1946 | ..... | ..... | ..... | ..... | .... | ..... | ..... | ..... |
| MACK | 1947 | ..... | ..... | 1 | 1,373 | 1,671 | 5,215 | 2,657 | 10,917 |
| | 1946 | ..... | ..... | 20 | 1,083 | 75 | 2,317 | 1,252 | 4,687 |
| OSHKOSH | 1947 | ..... | ..... | ..... | ..... | .... | 17 | 228 | 245 |
| | 1946 | ..... | ..... | ..... | ..... | .... | ..... | ..... | ..... |
| PETERBUILT | 1947 | ..... | ..... | ..... | ..... | .... | ..... | 195 | 195 |
| | 1946 | ..... | ..... | ..... | ..... | .... | ..... | ..... | ..... |
| REO | 1947 | ..... | ..... | 7,017 | 1,777 | 2,280 | 1,065 | 772 | 12,911 |
| | 1946 | ..... | ..... | 5,005 | 3,775 | 401 | 448 | 860 | 10,489 |
| STERLING | 1947 | ..... | ..... | ..... | ..... | .... | 46 | 530 | 576 |
| | 1946 | ..... | ..... | ..... | ..... | .... | 14 | 496 | 510 |
| STUDEBAKER | 1947 | 20,271 | 6,271 | 12,366 | 2,953 | .... | ..... | ..... | 41,861 |
| | 1946 | 10,031 | 4,941 | 2,401 | 8,926 | .... | ..... | 1,061 | 25,360 |
| WARD LA FRANCE | 1947 | ..... | ..... | ..... | ..... | .... | 56 | 453 | 509 |
| | 1946 | ..... | ..... | ..... | ..... | .... | ..... | ..... | ..... |
| WHITE | 1947 | ..... | ..... | 899 | 399 | 1,828 | 8,534 | 1,426 | 13,086 |
| | 1946 | ..... | ..... | 1,369 | 30 | 1,483 | 5,343 | 1,892 | 10,117 |
| WILLYS | 1947 | 46,427 | 1,392 | ..... | ..... | .... | ..... | ..... | 48,819 |
| | 1946 | 42,135 | ..... | ..... | ..... | .... | ..... | ..... | 42,135 |
| ALL OTHERS | 1947 | 1,851 | 416 | 204 | 13 | 210 | 273 | 562 | 3,529 |
| | 1946 | 219 | 36 | 124 | 27 | 97 | 232 | 2,652 | 3,387 |
| TOTAL | 1947 | 278,251 | 153,643 | 220,801 | 152,548 | 25,329 | 29,076 | 19,483 | 879,132 |
| | 1946 | 243,806 | 61,092 | 183,774 | 87,577 | 12,758 | 19,409 | 16,832 | 625,249 |
| PER CENT OF TOTAL | 1947 | 31.65% | 17.48% | 25.12% | 17.35% | 2.88% | 3.30% | 2.22% | 100.00% |
| | 1946 | 38.99% | 9.77% | 29.39% | 14.01% | 2.04% | 3.10% | 2.70% | 100.00% |

* Data from R. L. Polk & Co.

# Trucks in Use by Makes, by States and Year of Manufacture

| | July 1 1946 Total | 1946 | 1945 | 1944 | 1943 | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 | 1933 | Prior to 1933 | Yr. Not Given |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Autocar | 20,203 | 1,412 | 2,175 | 1,175 | 87 | 617 | 2,511 | 1,575 | 1,758 | 1,318 | 1,725 | 1,156 | 664 | 867 | 664 | 2,373 | 126 |
| Brockway | 18,156 | 1,109 | 2,053 | 1,167 | 57 | 472 | 2,420 | 1,469 | 1,736 | 1,389 | 1,578 | 1,477 | 773 | 644 | 297 | 1,441 | 74 |
| Chevrolet | 1,480,093 | 57,407 | 33,489 | 17,117 | 1,339 | 94,234 | 211,017 | 171,385 | 137,351 | 94,968 | 159,476 | 146,167 | 89,672 | 75,048 | 39,282 | 150,442 | 11,868 |
| Diamond T | 54,744 | 2,194 | 3,204 | 1,880 | 112 | 1,576 | 6,634 | 5,709 | 4,736 | 3,882 | 6,672 | 5,926 | 3,881 | 2,840 | 1,799 | 3,454 | 445 |
| Divco | 14,044 | 1,335 | 1,517 | 239 | 37 | 772 | 2,695 | 1,648 | 1,477 | 1,146 | 1,025 | 834 | 321 | 203 | 147 | 506 | 140 |
| Dodge | 542,977 | 46,896 | 19,347 | 8,071 | 508 | 35,766 | 82,168 | 55,550 | 45,705 | 30,936 | 52,160 | 68,433 | 34,684 | 23,432 | 9,727 | 23,161 | 5,431 |
| Federal | 18,309 | 1,523 | 2,212 | 795 | 140 | 814 | 1,534 | 1,289 | 1,218 | 1,019 | 1,500 | 1,676 | 1,034 | 857 | 423 | 1,797 | 478 |
| Ford | 1,584,465 | 58,903 | 45,594 | 19,428 | 2,669 | 70,873 | 187,195 | 138,502 | 103,415 | 81,279 | 152,946 | 143,257 | 106,987 | 75,442 | 26,526 | 355,536 | 16,403 |
| G.M.C. | 240,175 | 5,270 | 13,661 | 7,428 | 1,217 | 22,698 | 46,841 | 35,184 | 26,976 | 15,902 | 35,045 | 17,715 | 5,279 | 4,046 | 1,870 | 7,294 | 2,747 |
| International | 569,076 | 27,753 | 26,412 | 14,839 | 1,675 | 25,791 | 89,486 | 71,572 | 58,962 | 51,768 | 56,090 | 54,052 | 33,739 | 15,318 | 9,478 | 26,440 | 4,701 |
| Mack | 73,115 | 3,109 | 5,114 | 3,092 | 394 | 3,796 | 10,582 | 7,631 | 6,700 | 4,327 | 5,536 | 3,728 | 1,846 | 1,510 | 1,105 | 14,415 | 810 |
| Plymouth | 68,697 | 1,106 | 57 | 76 | 52 | 1,845 | 12,159 | 10,477 | 9,153 | 6,723 | 13,056 | 4,314 | 2,053 | 2,021 | 1,628 | 3,368 | 609 |
| Reo | 32,338 | 3,308 | 2,771 | 321 | 53 | 1,108 | 1,838 | 399 | 910 | 2,694 | 3,206 | 2,293 | 2,681 | 1,793 | 830 | 7,593 | 535 |
| Studebaker | 39,293 | 6,866 | 2,484 | 968 | 401 | 2,895 | 5,868 | 1,412 | 2,024 | 1,825 | 4,516 | 2,088 | 1,070 | 765 | 624 | 5,153 | 324 |
| White | 67,831 | 3,470 | 6,880 | 3,725 | 1,285 | 4,377 | 10,238 | 5,512 | 4,300 | 3,465 | 5,407 | 4,819 | 2,556 | 2,421 | 724 | 7,946 | 685 |
| Willys-Overland | 31,766 | 12,537 | 2,136 | 344 | 390 | 1,663 | 2,138 | 2,482 | 1,251 | 1,790 | 1,173 | 1,561 | 1,036 | 116 | 141 | 2,622 | 356 |
| Totals (including miscellaneous) | 5,068,792 | 241,393 | 175,181 | 84,234 | 11,483 | 279,448 | 691,858 | 525,101 | 418,857 | 313,945 | 516,530 | 472,989 | 295,673 | 213,164 | 99,667 | 676,744 | 52,544 |

# January,'48,New Truck Registrations by Makes,by States*

| | Auto-car | Brock-way | Chev-rolet | Dia-mond T | Divco | Dodge | Fed-eral | Ford | F.W.D. | G.M.C. | Inter-nat-ional | Mack | Osh-kosh | Reo | Ster-ling | Stude-baker | Ward La France | White | Willys | All Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | ... | ... | 593 | 8 | ... | 131 | 7 | 219 | ... | 128 | 156 | 12 | ... | 40 | ... | 71 | ... | 14 | 97 | 2 | 1478 |
| Arizona | ... | ... | 136 | ... | 2 | 45 | 1 | 17 | ... | 25 | 32 | 1 | ... | 11 | ... | 21 | ... | 8 | 20 | 2 | 321 |
| Arkansas | ... | ... | 301 | 11 | ... | 108 | 6 | 201 | 2 | 126 | 215 | 4 | ... | 49 | ... | 99 | ... | 13 | 196 | 1 | 1332 |
| California | | | | | | | | | | | | | | | | | | | | | |
| Colorado | 1 | ... | 307 | 18 | 12 | 111 | 5 | 188 | 4 | 72 | 204 | 1 | ... | 13 | ... | 55 | ... | 14 | 73 | 3 | 1061 |
| Connecticut | 17 | 9 | 183 | 15 | 4 | 78 | 10 | 61 | 6 | 37 | 79 | 12 | ... | 8 | ... | 46 | ... | 15 | 89 | 3 | 673 |
| Delaware | ... | 2 | 91 | 3 | 2 | 20 | ... | 20 | ... | 14 | 35 | 1 | ... | 3 | ... | 10 | ... | 7 | 6 | 4 | 218 |
| Dist. of Columbia | 2 | 1 | 70 | 6 | 15 | 18 | 4 | 35 | 40 | ... | 49 | 2 | ... | 4 | ... | 8 | ... | 2 | 6 | | 262 |
| Florida | 9 | ... | 614 | 23 | ... | 161 | 11 | 221 | 1 | 81 | 157 | 18 | ... | 27 | ... | 88 | 1 | 18 | 105 | 19 | 1554 |
| Georgia | ... | 1 | 707 | 36 | 4 | 164 | 8 | 478 | 1 | 174 | 383 | 24 | ... | 34 | ... | 154 | ... | 28 | 202 | 8 | 2406 |
| Idaho | ... | ... | 80 | 2 | ... | 29 | 2 | 12 | ... | 25 | 40 | ... | ... | 2 | ... | 20 | ... | 5 | 21 | 6 | 244 |
| Illinois | 12 | 1 | 1530 | 70 | 66 | 454 | 39 | 337 | 4 | 238 | 773 | 37 | ... | 84 | ... | 242 | ... | 50 | 282 | 47 | 4266 |
| Indiana | ... | 1 | 526 | 18 | 13 | 103 | 13 | 66 | ... | 134 | 269 | 13 | ... | 33 | ... | 116 | ... | 29 | 130 | 7 | 1471 |
| Iowa | ... | ... | 531 | 25 | 1 | 191 | 4 | 343 | 6 | 101 | 301 | 7 | 1 | 42 | ... | 101 | 2 | 11 | 173 | 3 | 1843 |
| Kansas | ... | ... | 431 | 11 | 6 | 102 | 7 | 48 | 1 | 60 | 152 | ... | ... | 17 | ... | 52 | ... | 7 | 54 | 5 | 953 |
| Kentucky | 1 | ... | 575 | 14 | 5 | 156 | 21 | 222 | ... | 98 | 212 | 19 | ... | 35 | ... | 76 | ... | 12 | 344 | 4 | 1794 |
| Louisiana | | | | | | | | | | | | | | | | | | | | | |
| Maine | ... | 1 | 44 | ... | 2 | 19 | 1 | 83 | ... | 32 | 45 | 1 | ... | 9 | ... | 20 | ... | ... | 10 | 2 | 269 |
| Maryland | 7 | 14 | 330 | 2 | 11 | 96 | ... | 107 | 5 | 62 | 122 | 16 | ... | 11 | ... | 36 | ... | 5 | 34 | 3 | 861 |
| Massachusetts | 6 | 5 | 265 | 11 | 30 | 103 | 1 | 143 | 1 | 64 | 117 | 4 | 2 | 8 | 1 | 47 | ... | 8 | 43 | 5 | 864 |
| Michigan | 1 | 11 | 922 | 18 | 40 | 382 | 26 | 510 | ... | 247 | 352 | 17 | ... | 58 | 1 | 138 | 1 | 39 | 175 | 10 | 2950 |
| Minnesota | 7 | ... | 664 | 21 | 7 | 170 | 8 | 166 | 5 | 115 | 355 | 16 | ... | 11 | ... | 118 | ... | 31 | 83 | 6 | 1783 |
| Mississippi | ... | ... | 443 | 2 | ... | 103 | 2 | 147 | ... | 83 | 128 | 10 | ... | 16 | ... | 42 | ... | 5 | 83 | 3 | 1070 |
| Missouri | 2 | 2 | 873 | 24 | 10 | 196 | 7 | 150 | ... | 130 | 274 | 12 | ... | 19 | ... | 93 | 39 | ... | 139 | 8 | 1978 |
| Montana | ... | ... | 121 | 3 | ... | 75 | 2 | 83 | ... | 37 | 134 | 1 | 1 | 11 | ... | 43 | ... | 5 | 86 | 5 | 607 |
| Nebraska | ... | ... | 480 | 19 | ... | 138 | 3 | 242 | 2 | 86 | 301 | 15 | ... | 13 | ... | 76 | ... | 16 | 120 | 3 | 1524 |
| Nevada | ... | 1 | 30 | | ... | 14 | ... | 14 | ... | 3 | 12 | ... | ... | ... | ... | 12 | ... | ... | ... | 5 | 91 |
| New Hampshire | 1 | ... | 54 | 2 | 3 | 34 | 3 | 26 | ... | 16 | 31 | 8 | ... | 1 | ... | 13 | ... | 3 | 15 | 4 | 214 |
| New Jersey | 22 | 21 | 304 | 17 | 11 | 52 | 5 | 20 | 2 | 99 | 129 | 39 | ... | 10 | ... | 63 | 2 | 10 | 107 | 3 | 916 |
| New Mexico | ... | ... | 152 | 3 | ... | 21 | 1 | 22 | ... | 22 | 38 | 1 | ... | 2 | ... | 13 | ... | 3 | 28 | ... | 306 |
| New York | | | | | | | | | | | | | | | | | | | | | |
| North Carolina | 1 | ... | 727 | 5 | ... | 164 | 8 | 161 | ... | 76 | 194 | 53 | ... | 26 | ... | 112 | ... | 20 | 139 | 15 | 1701 |
| North Dakota | ... | ... | 56 | 4 | ... | 18 | 1 | 6 | ... | 9 | 39 | ... | ... | 2 | ... | 18 | ... | 4 | 3 | ... | 160 |
| Ohio | 18 | 5 | 1051 | 24 | 30 | 330 | 19 | 341 | 10 | 333 | 521 | 41 | ... | 61 | ... | 165 | ... | 88 | 136 | 21 | 3194 |
| Oklahoma | ... | ... | 387 | 1 | ... | 128 | 9 | 110 | ... | 71 | 199 | 1 | ... | 16 | ... | 33 | ... | 18 | 81 | 2 | 1056 |
| Oregon | 5 | ... | 325 | 8 | 2 | 160 | 9 | 60 | ... | 89 | 119 | 9 | ... | 8 | 2 | 84 | ... | 11 | 82 | 14 | 1025 |
| Pennsylvania | 40 | 69 | 1134 | 48 | 12 | 283 | 25 | 216 | 1 | 350 | 532 | 120 | ... | 53 | 2 | 207 | 2 | 89 | 236 | 31 | 3451 |
| Rhode Island | 11 | ... | 65 | 7 | 9 | 32 | ... | 32 | ... | 17 | 41 | 5 | ... | 1 | ... | 15 | ... | 7 | 16 | 1 | 260 |
| South Carolina | ... | ... | 301 | 3 | ... | 121 | 4 | 98 | ... | 62 | 71 | 17 | ... | 15 | ... | 37 | ... | 14 | 46 | 6 | 795 |
| South Dakota | ... | ... | 107 | 9 | 1 | 42 | 6 | 29 | ... | 31 | 138 | 3 | ... | 14 | ... | 22 | ... | 2 | 51 | 3 | 458 |
| Tennessee | ... | ... | 690 | 12 | 6 | 159 | 13 | 232 | ... | 180 | 205 | 9 | ... | 34 | ... | 91 | ... | 19 | 83 | 13 | 1746 |
| Texas | 1 | 6 | 1875 | 25 | 17 | 491 | 8 | 220 | 2 | 302 | 582 | 48 | ... | 51 | ... | 271 | 1 | 73 | 321 | 11 | 4315 |
| Utah | ... | ... | 94 | 11 | 9 | 61 | ... | 43 | ... | 53 | 64 | 4 | ... | ... | ... | 35 | ... | 6 | 15 | 4 | 399 |
| Vermont | ... | 2 | 59 | 3 | 4 | 31 | ... | 32 | 1 | 21 | 35 | 2 | ... | 8 | ... | 15 | ... | 1 | 9 | 3 | 226 |
| Virginia | 4 | 2 | 714 | 8 | 8 | 153 | 13 | 101 | ... | 84 | 166 | 11 | ... | 26 | ... | 77 | 1 | 13 | 91 | 12 | 1484 |
| Washington | ... | ... | 212 | 7 | 10 | 79 | ... | 42 | 8 | 42 | 57 | 5 | ... | 4 | ... | 28 | ... | 4 | 25 | 8 | 535 |
| West Virginia | ... | 14 | 265 | 5 | 3 | 87 | 7 | 70 | 1 | 91 | 94 | 10 | ... | 10 | ... | 45 | 4 | 14 | 104 | 5 | 829 |
| Wisconsin | 1 | ... | 673 | 20 | 14 | 172 | 14 | 121 | 9 | 117 | 321 | 17 | 7 | 25 | 1 | 97 | 1 | 28 | 133 | 4 | 1775 |
| Wyoming | 1 | ... | 99 | 5 | ... | 40 | 1 | 47 | 1 | 14 | 39 | 1 | ... | ... | ... | 25 | ... | 3 | 42 | 1 | 319 |
| Total 46 States '48 | 170 | 168 | 20205 | 568 | 369 | 5825 | 335 | 6122 | 73 | 4301 | 8522 | 647 | 11 | 925 | 7 | 3250 | 15 | 811 | 4343 | 350 | 57037 |
| Total 46 States '47 | 268 | 218 | 14697 | 606 | 258 | 7487 | 293 | 11816 | 68 | 2977 | 5994 | 364 | 13 | 920 | 20 | 1880 | 18 | 692 | 2074 | 268 | 51131 |

*Data from R. L. Polk & Co.

# 1947 New Truck Registrations by Makes, by States*

| | Auto-car | Brock-way | Chev-rolet | Dia-mond T | Divco | Dodge | Fed-eral | Ford | F.W.D. | G.M.C. | Inter-nat-ional | Mack | Osh-kosh | Reo | Ster-ling | Stude-baker | Ward La France | White | Willys | All Others | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 7 | ... | 5492 | 99 | 29 | 2382 | 81 | 3953 | 1 | 1054 | 2163 | 100 | ... | 288 | ... | 548 | 1 | 176 | 1168 | 73 | 17,615 |
| Arizona | 4 | ... | 1340 | 27 | 16 | 617 | 20 | 1107 | 5 | 328 | 457 | 13 | ... | 104 | .5 | 326 | ... | 48 | 355 | 39 | 4,811 |
| Arkansas | ... | ... | 4680 | 25 | ... | 1724 | 40 | 3816 | ... | 804 | 1466 | 30 | ... | 104 | ... | 507 | ... | 58 | 1020 | 28 | 14,563 |
| California | 369 | 52 | 15806 | 495 | 351 | 8816 | 174 | 12293 | 186 | 4577 | 6694 | 384 | ... | 530 | 117 | 3869 | 9 | 622 | 2321 | 988 | 58,653 |
| Colorado | 27 | ... | 2351 | 119 | 55 | 1148 | 48 | 2252 | 76 | 547 | 1445 | 48 | 2 | 115 | ... | 389 | 9 | 80 | 714 | 65 | 9490 |
| Connecticut | 197 | 140 | 1982 | 141 | 100 | 1176 | 183 | 1323 | 43 | 502 | 1316 | 276 | ... | 128 | 7 | 480 | ... | 158 | 422 | 91 | 8665 |
| Delaware | 17 | 21 | 674 | 20 | 24 | 482 | 1 | 636 | 4 | 164 | 386 | 17 | ... | 26 | ... | 114 | 2 | 31 | 97 | 17 | 2733 |
| Dist. of Columbia | 18 | 20 | 783 | 47 | 105 | 488 | 35 | 718 | ... | 301 | 405 | 34 | ... | 55 | 2 | 138 | 2 | 50 | 67 | 20 | 3299 |
| Florida | 38 | 1 | 5710 | 196 | 34 | 2425 | 75 | 4340 | 35 | 913 | 1889 | 244 | ... | 229 | ... | 849 | 5 | 179 | 1033 | 188 | 18,383 |
| Georgia | 7 | 2 | 6619 | 192 | 11 | 2802 | 67 | 5231 | 1 | 960 | 2157 | 169 | ... | 245 | 1 | 741 | ... | 230 | 993 | -71 | 20,489 |
| Idaho | 9 | ... | 1639 | 73 | 17 | 742 | 61 | 1296 | 17 | 348 | 838 | 21 | 1 | 81 | 2 | 423 | ... | 22 | 457 | 62 | 6110 |
| Illinois | 239 | 55 | 12023 | 1097 | 398 | 6325 | 278 | 9445 | 19 | 2394 | 6720 | 407 | ... | 782 | 19 | 2054 | 6 | 685 | 3120 | 391 | 45,457 |
| Indiana | 39 | 121 | 6303 | 385 | 151 | 3645 | 150 | 4885 | 56 | 1401 | 4081 | 162 | ... | 437 | 1 | 1780 | ... | 471 | 1339 | 248 | 25,755 |
| Iowa | 5 | 2 | 5658 | 315 | 69 | 2563 | 70 | 4237 | 21 | 864 | 3570 | 173 | 2 | 327 | ... | 1052 | 3 | 174 | 1638 | 92 | 20,835 |
| Kansas | 10 | 2 | 5507 | 248 | 24 | 1623 | 165 | 3869 | 2 | 829 | 2367 | 48 | ... | 220 | ... | 939 | ... | 164 | 638 | 71 | 16,957 |
| Kentucky | 19 | ... | 5030 | 189 | 23 | 2224 | 137 | 3503 | 1 | 898 | 2155 | 100 | ... | 270 | ... | 682 | ... | 142 | 1716 | 104 | 17,193 |
| Louisiana | 15 | ... | 3755 | 186 | 19 | 1656 | 47 | 2980 | 2 | 566 | 1566 | 115 | ... | 146 | ... | 630 | ... | 163 | 778 | 29 | 12,653 |
| Maine | 24 | 32 | 1852 | 24 | 26 | 1057 | 73 | 1891 | 7 | 426 | 1065 | 116 | 12 | 140 | 13 | 373 | 5 | 81 | 410 | 56 | 7683 |
| Maryland | 100 | 108 | 3436 | 79 | 151 | 2015 | 182 | 2439 | ... | 641 | 1537 | 183 | ... | 240 | 1 | 565 | 22 | 154 | 484 | 75 | 12,412 |
| Massachusetts | 276 | 242 | 3726 | 256 | 344 | 2777 | 112 | 3831 | 5 | 1068 | 2326 | 421 | 2 | 270 | 122 | 821 | 32 | 354 | 559 | 151 | 17,695 |
| Michigan | 79 | 63 | 8462 | 354 | 425 | 5617 | 528 | 7636 | 4 | 1963 | 3199 | 169 | ... | 845 | 1 | 1523 | 17 | 345 | 2031 | 292 | 33,553 |
| Minnesota | 56 | 2 | 4118 | 197 | 80 | 2431 | 206 | 4153 | 32 | 826 | 2638 | 132 | 7 | 146 | ... | 895 | 17 | 303 | 764 | 105 | 17,108 |
| Mississippi | 2 | ... | 5225 | 117 | 2 | 1881 | 36 | 3740 | 1 | 843 | 1532 | 101 | ... | 133 | ... | 565 | ... | 105 | 956 | 25 | 15,264 |
| Missouri | 24 | 11 | 8639 | 304 | 108 | 3502 | 136 | 6197 | 3 | 1543 | 3612 | 142 | ... | 248 | ... | 1114 | 4 | 318 | 1595 | 130 | 27,631 |
| Montana | 5 | ... | 2266 | 85 | 3 | 1077 | 44 | 1522 | 20 | 366 | 1105 | 12 | 1 | 85 | 2 | 469 | ... | 67 | 1063 | 44 | 8243 |
| Nebraska | 6 | 1 | 2964 | 247 | 19 | 1508 | 78 | 2401 | 28 | 579 | 2087 | 152 | 3 | 145 | ... | 654 | ... | 226 | 948 | 35 | 12,082 |
| Nevada | 8 | ... | 302 | 21 | 3 | 230 | 2 | 304 | 7 | 88 | 193 | 3 | 1 | 15 | 2 | 83 | ... | 11 | 75 | 25 | 1373 |
| New Hampshire | 27 | 11 | 894 | 30 | 23 | 608 | 20 | 739 | 1 | 188 | 497 | 133 | ... | 83 | 17 | 161 | ... | 57 | 233 | 37 | 3749 |
| New Jersey | 343 | 575 | 5571 | 324 | 367 | 3102 | 205 | 3906 | 14 | 1564 | 2874 | 766 | 3 | 252 | 18 | 989 | 44 | 459 | 987 | 243 | 22,604 |
| New Mexico | ... | ... | 1608 | 68 | ... | 733 | 33 | 959 | 5 | 354 | 565 | 39 | ... | 44 | ... | 235 | 2 | 63 | 229 | 15 | 4852 |
| New York | 969 | 1513 | 11396 | 1044 | 535 | 9587 | 499 | 9881 | 141 | 3531 | 6983 | 2210 | 67 | 1124 | 77 | 2270 | 182 | 1344 | 2308 | 588 | 56,259 |
| North Carolina | 48 | 16 | 8384 | 139 | 37 | 3382 | 165 | 5354 | 12 | 718 | 2136 | 400 | ... | 420 | ... | 1143 | 6 | 334 | 1620 | 130 | 24,445 |
| North Dakota | 4 | ... | 1284 | 81 | 7 | 766 | 42 | 1509 | 11 | 275 | 1134 | 38 | 4 | 44 | ... | 417 | ... | 29 | 493 | 13 | 6151 |
| Ohio | 312 | 72 | 11132 | 464 | 386 | 6898 | 417 | 8847 | 29 | 2583 | 6024 | 699 | 1 | 820 | 1 | 1983 | 19 | 1292 | 2954 | 403 | 45,336 |
| Oklahoma | 3 | ... | 5299 | 71 | 41 | 2675 | 58 | 4091 | 11 | 860 | 2842 | 91 | ... | 209 | ..6 | 798 | 5 | 195 | 1091 | 51 | 18,392 |
| Oregon | 51 | 1 | 3098 | 226 | 43 | 1892 | 134 | 2161 | 31 | 799 | 1475 | 117 | ... | 148 | 14 | 771 | ... | 165 | 898 | 162 | 12,184 |
| Pennsylvania | 614 | 982 | 11443 | 737 | 168 | 8815 | 435 | 9573 | 46 | 3091 | 7399 | 1170 | 93 | 948 | 78 | 2681 | 69 | 1304 | 2543 | 397 | 52,566 |
| Rhode Island | 107 | 7 | 941 | 48 | 93 | 489 | 11 | 662 | 2 | 222 | 438 | 46 | ... | 35 | 10 | 162 | 3 | 63 | 113 | 31 | 3485 |
| South Carolina | 7 | ... | 3564 | 53 | ... | 1662 | 36 | 2774 | 25 | 474 | 859 | 138 | ... | 213 | ... | 455 | ... | 144 | 695 | 94 | 11,194 |
| South Dakota | 10 | ... | 1008 | 113 | 3 | 876 | 44 | 1066 | 10 | 268 | 1018 | 33 | ... | 94 | ... | 286 | ... | 48 | 656 | 14 | 5548 |
| Tennessee | 12 | 17 | 7404 | 144 | 28 | 3189 | 211 | 4704 | 24 | 1552 | 2830 | 211 | ... | 806 | 3 | 899 | 2 | 290 | 1226 | 154 | 23,206 |
| Texas | 6 | 20 | 16005 | 375 | 123 | 8273 | 170 | 12454 | 8 | 2849 | 7112 | 390 | 1 | 628 | ... | 2428 | 7 | 845 | 3284 | 204 | 55,182 |
| Utah | ... | ... | 1233 | 52 | 29 | 570 | 51 | 1022 | 16 | 307 | 653 | 33 | 1 | 19 | 1 | 278 | ... | 44 | 252 | 51 | 4612 |
| Vermont | 9 | 35 | 799 | 29 | 12 | 569 | 28 | 811 | 7 | 233 | 523 | 86 | 6 | 122 | 7 | 158 | 13 | 33 | 430 | 36 | 3946 |
| Virginia | 102 | 64 | 6457 | 209 | 96 | 3086 | 161 | 5840 | 15 | 983 | 2401 | 148 | ... | 311 | 1 | 915 | 2 | 297 | 1179 | 189 | 22,555 |
| Washington | 24 | 1 | 3353 | 206 | 87 | 1914 | 30 | 3278 | 18 | 869 | 1816 | 147 | ... | 199 | 16 | 857 | ... | 114 | 657 | 194 | 13,780 |
| West Virginia | 33 | 66 | 2094 | 81 | 43 | 1478 | 108 | 1918 | 65 | 506 | 970 | 99 | ... | 149 | ... | 413 | 12 | 110 | 801 | 73 | 9019 |
| Wisconsin | 51 | ... | 5433 | 319 | 181 | 2581 | 124 | 3945 | 123 | 1040 | 3092 | 130 | 38 | 367 | 38 | 824 | 4 | 385 | 938 | 116 | 19,729 |
| Wyoming | 1 | ... | 861 | 64 | 4 | 437 | 10 | 722 | 4 | 127 | 511 | 17 | ... | 21 | ... | 153 | 5 | 53 | 584 | 18 | 3482 |
| Total - 1947 | 4334 | 4255 | 235803 | 10475 | 4893 | 126736 | 6020 | 186414 | 1195 | 48187 | 113151 | 10917 | 245 | 12911 | 576 | 41861 | 509 | 13086 | 49819 | 6745 | 879, 132. |

# 1948 TRUCK FLEET CENSUS

## Total Vehicles in Fleets of 8 or More Trucks

| State | *Fleets | Trucks | Trailers | Passenger Cars & Taxi Cabs * | Buses | Vehicles |
|---|---|---|---|---|---|---|
| Alabama | 298 | 11,671 | 1,839 | 3,300 | 5,879 | 22,689 |
| Arizona | 85 | 3,487 | 951 | 1,144 | 171 | 5,753 |
| Arkansas | 144 | 5,293 | 856 | 994 | 287 | 7,430 |
| California | 1,546 | 91,415 | 16,898 | 28,173 | 5,771 | 142,257 |
| Colorado | 264 | 13,956 | 1,578 | 2,842 | 518 | 18,894 |
| Connecticut | 467 | 12,483 | 2,648 | 2,475 | 1,318 | 18,924 |
| Delaware | 81 | 2,812 | 531 | 1,118 | 80 | 4,541 |
| Dist. of Col. | 195 | 22,771 | 1,700 | 6,686 | 1,287 | 32,444 |
| Florida | 347 | 11,972 | 1,803 | 2,569 | 2,853 | 19,197 |
| Georgia | 375 | 20,842 | 2,236 | 3,177 | 1,068 | 27,323 |
| Idaho | 66 | 3,268 | 476 | 841 | 66 | 4,651 |
| Illinois | 1,540 | 68,286 | 17,716 | 17,542 | 2,308 | 105,852 |
| Indiana | 680 | 23,585 | 7,313 | 4,100 | 1,008 | 36,006 |
| Iowa | 392 | 10,536 | 2,046 | 2,429 | 692 | 15,703 |
| Kansas | 270 | 10,608 | 1,651 | 1,889 | 269 | 14,417 |
| Kentucky | 265 | 9,444 | 1,152 | 2,336 | 1,444 | 14,376 |
| Louisiana | 411 | 12,171 | 1,630 | 3,812 | 1,275 | 18,888 |
| Maine | 153 | 4,763 | 495 | 906 | 252 | 6,416 |
| Maryland | 450 | 17,245 | 3,227 | 4,090 | 629 | 25,191 |
| Massachusetts | 1,205 | 38,536 | 5,374 | 9,040 | 3,417 | 56,367 |
| Michigan | 1,110 | 42,478 | 13,384 | 13,106 | 5,517 | 74,485 |
| Minnesota | 448 | 17,891 | 3,077 | 4,824 | 1,770 | 27,562 |
| Mississippi | 106 | 3,977 | 611 | 583 | 408 | 5,579 |
| Missouri | 683 | 29,633 | 6,584 | 5,323 | 2,654 | 44,194 |
| Montana | 123 | 4,308 | 586 | 702 | 285 | 5,881 |
| Nebraska | 234 | 7,847 | 1,724 | 1,858 | 670 | 12,099 |
| Nevada | 32 | 1,095 | 231 | 411 | 55 | 1,792 |
| New Hampshire | 98 | 2,802 | 409 | 573 | 98 | 3,880 |
| New Jersey | 1,008 | 33,810 | 7,070 | 7,194 | 5,634 | 53,708 |
| New Mexico | 67 | 3,031 | 296 | 889 | 306 | 4,522 |
| New York | 2,201 | 148,245 | 10,888 | 25,641 | 13,775 | 199,549 |
| N. Carolina | 463 | 20,100 | 3,260 | 2,211 | 9,564 | 35,135 |
| N. Dakota | 54 | 1,498 | 178 | 357 | 21 | 2,054 |
| Ohio | 1,528 | 57,785 | 15,833 | 12,224 | 3,981 | 89,823 |
| Oklahoma | 318 | 16,279 | 3,689 | 6,480 | 769 | 27,217 |
| Oregon | 281 | 10,714 | 1,980 | 2,676 | 677 | 16,047 |
| Pennsylvania | 2,250 | 77,979 | 12,266 | 22,191 | 4,006 | 116,442 |
| Rhode Island | 221 | 6,207 | 1,009 | 1,777 | 924 | 9,917 |
| S. Carolina | 190 | 5,708 | 753 | 1,177 | 281 | 7,918 |
| S. Dakota | 69 | 2,156 | 368 | 457 | 82 | 3,063 |
| Tennessee | 394 | 17,295 | 2,357 | 5,481 | 1,689 | 26,825 |
| Texas | 957 | 36,996 | 8,024 | 11,906 | 3,484 | 60,410 |
| Utah | 126 | 4,468 | 776 | 867 | 562 | 6,673 |
| Vermont | 42 | 1,001 | 257 | 188 | 100 | 1,546 |
| Virginia | 430 | 21,986 | 2,567 | 3,197 | 2,268 | 30,018 |
| Washington | 484 | 15,686 | 2,399 | 4,864 | 1,290 | 23,430 |
| West Virginia | 282 | 9,233 | 844 | 1,804 | 2,244 | 14,125 |
| Wisconsin | 626 | 21,001 | 4,735 | 3,900 | 926 | 30,562 |
| Wyoming | 54 | 1,378 | 280 | 457 | 30 | 2,145 |
| TOTALS | *24,123 | 1,018,734 | 178,555 | 241,981 | 94,660 | 1,533,930 |

* Includes exclusive bus and taxi-cab fleets.

# 1948 Census of Truck Fleets Operating 8 or More Trucks

## Showing Number of Fleets and the Trucks, Trailers and Passenger Cars They Operate--by States

| State | FLEETS OPERATING 8 TO 24 TRUCKS | | | | FLEETS OPERATING 25 TO 49 TRUCKS | | | | FLEETS OPERATING 50 TO 99 TRUCKS | | | | FLEETS OPERATING 100 & OVER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fleets | Trucks | Trailers | Passenger Cars | Fleets | Trucks | Trailers | Passenger Cars | Fleets | Trucks | Trailers | Passenger Cars | Fleets | Trucks | Trailers | Passenger Cars |
| Alabama | 155 | 1,938 | 204 | 539 | 61 | 2,091 | 261 | 489 | 25 | 1,725 | 582 | 404 | 10 | 5,917 | 792 | 1,842 |
| Arizona | 45 | 582 | 118 | 141 | 23 | 795 | 140 | 81 | 8 | 525 | 112 | 185 | 7 | 1,585 | 581 | 737 |
| Arkansas | 89 | 1,232 | 202 | 283 | 33 | 1,166 | 273 | 209 | 11 | 793 | 88 | 48 | 7 | 2,102 | 293 | 454 |
| California | 781 | 10,678 | 2,596 | 4,695 | 353 | 12,766 | 2,861 | 3,490 | 208 | 14,023 | 2,864 | 3,485 | 177 | 53,946 | 8,577 | 16,143 |
| Colorado | 168 | 2,264 | 338 | 659 | 47 | 1,533 | 280 | 346 | 23 | 1,628 | 191 | 295 | 19 | 8,531 | 769 | 1,542 |
| Connecticut | 318 | 3,949 | 687 | 746 | 93 | 3,093 | 715 | 617 | 33 | 2,185 | 423 | 345 | 13 | 3,276 | 823 | 767 |
| Delaware | 45 | 540 | 113 | 404 | 17 | 560 | 175 | 55 | 13 | 869 | 207 | 279 | 5 | 843 | 36 | 380 |
| Dist of Col. | 90 | 1,140 | 45 | 181 | 42 | 1,437 | 70 | 222 | 31 | 2,184 | 278 | 464 | 27 | 18,010 | 1,307 | 4,324 |
| Florida | 175 | 2,317 | 321 | 777 | 93 | 3,162 | 389 | 489 | 40 | 2,641 | 443 | 401 | 34 | 3,852 | 670 | 882 |
| Georgia | 233 | 3,026 | 413 | 649 | 72 | 2,459 | 328 | 366 | 33 | 2,185 | 363 | 976 | 31 | 13,172 | 1,132 | 1,006 |
| Idaho | 36 | 421 | 81 | 81 | 17 | 552 | 120 | 104 | 6 | 370 | 83 | 68 | 6 | 1,925 | 192 | 588 |
| Illinois | 942 | 12,361 | 2,278 | 2,691 | 317 | 10,617 | 3,056 | 2,232 | 136 | 9,148 | 3,885 | 1,664 | 119 | 36,160 | 8,497 | 9,360 |
| Indiana | 418 | 5,529 | 1,329 | 1,186 | 167 | 5,237 | 2,027 | 868 | 68 | 4,458 | 1,974 | 831 | 28 | 8,363 | 1,883 | 1,075 |
| Iowa | 275 | 3,569 | 417 | 811 | 77 | 2,645 | 637 | 471 | 22 | 1,421 | 333 | 192 | 10 | 2,801 | 659 | 843 |
| Kansas | 185 | 2,418 | 517 | 787 | 51 | 1,699 | 485 | 372 | 20 | 1,248 | 234 | 181 | 12 | 5,248 | 416 | 549 |
| Kentucky | 168 | 2,290 | 335 | 507 | 55 | 1,974 | 199 | 454 | 17 | 1,163 | 217 | 131 | 15 | 4,017 | 401 | 979 |
| Louisiana | 267 | 3,642 | 566 | 1,108 | 73 | 2,489 | 354 | 657 | 38 | 2,501 | 366 | 402 | 23 | 3,539 | 344 | 939 |
| Maine | 85 | 1,200 | 168 | 194 | 37 | 1,313 | 213 | 217 | 12 | 737 | 66 | 102 | 8 | 1,513 | 48 | 393 |
| Maryland | 279 | 3,671 | 519 | 965 | 79 | 2,573 | 534 | 589 | 44 | 2,972 | 378 | 475 | 37 | 8,029 | 1,796 | 1,059 |
| Massachusetts | 836 | 10,908 | 1,416 | 2,489 | 198 | 6,581 | 991 | 1,054 | 86 | 5,719 | 1,177 | 1,873 | 63 | 15,328 | 1,780 | 3,359 |
| Michigan | 666 | 8,403 | 2,291 | 1,899 | 225 | 7,614 | 2,091 | 1,305 | 132 | 8,986 | 3,503 | 1,755 | 75 | 17,475 | 5,499 | 7,947 |
| Minnesota | 241 | 3,165 | 539 | 616 | 99 | 3,500 | 550 | 985 | 68 | 4,570 | 615 | 775 | 34 | 8,656 | 1,373 | 2,323 |
| Mississippi | 65 | 823 | 127 | 147 | 15 | 500 | 102 | 73 | 13 | 952 | 163 | 150 | 7 | 1,702 | 219 | 213 |
| Missouri | 403 | 5,045 | 897 | 965 | 122 | 4,162 | 1,452 | 850 | 85 | 5,928 | 1,657 | 972 | 58 | 14,498 | 2,578 | 2,036 |
| Montana | 69 | 941 | 151 | 173 | 28 | 972 | 181 | 172 | 15 | 898 | 56 | 136 | 7 | 1,497 | 198 | 221 |
| Nebraska | 146 | 1,902 | 327 | 498 | 48 | 1,670 | 347 | 302 | 20 | 1,425 | 110 | 437 | 15 | 2,850 | 940 | 470 |
| Nevada | 17 | 227 | 41 | 37 | 10 | 331 | 43 | 117 | 3 | 180 | 19 | 28 | 2 | 357 | 128 | 229 |
| New Hampshire | 66 | 853 | 146 | 160 | 19 | 654 | 98 | 48 | 6 | 372 | 108 | 216 | 4 | 923 | 57 | 169 |
| New Jersey | 633 | 8,291 | 1,908 | 2,094 | 187 | 6,147 | 1,589 | 1,174 | 101 | 6,755 | 1,607 | 1,095 | 56 | 12,617 | 2,066 | 2,831 |
| New Mexico | 35 | 563 | 88 | 161 | 14 | 473 | 97 | 169 | 3 | 201 | 41 | 38 | 7 | 1,794 | 70 | 521 |
| New York | 1,321 | 17,042 | 2,297 | 3,557 | 409 | 13,688 | 2,265 | 2,341 | 221 | 14,727 | 1,674 | 2,103 | 200 | 103,788 | 4,852 | 14,383 |
| N. Carolina | 273 | 3,471 | 582 | 484 | 81 | 2,757 | 691 | 315 | 42 | 2,855 | 367 | 361 | 32 | 11,017 | 1,620 | 1,051 |
| N. Dakota | 43 | 542 | 44 | 115 | 12 | 405 | 30 | 108 | 8 | 551 | 104 | 104 | ... | ... | ... | 30 |
| Ohio | 962 | 12,296 | 2,909 | 2,878 | 293 | 9,871 | 2,632 | 3,416 | 147 | 9,735 | 3,240 | 1,186 | 102 | 25,883 | 7,052 | 4,244 |
| Oklahoma | 190 | 2,577 | 521 | 574 | 67 | 2,212 | 476 | 437 | 26 | 1,761 | 461 | 516 | 27 | 9,729 | 2,231 | 4,963 |
| Oregon | 163 | 2,244 | 551 | 491 | 73 | 2,450 | 623 | 720 | 28 | 1,861 | 233 | 354 | 14 | 4,159 | 573 | 1,111 |
| Pennsylvania | 1,470 | 18,660 | 2,712 | 4,876 | 430 | 14,299 | 2,794 | 2,768 | 177 | 11,904 | 2,214 | 2,127 | 122 | 33,116 | 4,546 | 10,557 |
| Rhode Island | 151 | 1,781 | 227 | 289 | 40 | 1,410 | 319 | 351 | 19 | 1,201 | 225 | 185 | 8 | 1,815 | 238 | 851 |
| S. Carolina | 124 | 1,615 | 283 | 332 | 48 | 1,587 | 252 | 158 | 12 | 752 | 32 | 167 | 5 | 1,754 | 206 | 520 |
| S. Dakota | 41 | 563 | 104 | 233 | 15 | 537 | 129 | 74 | 8 | 526 | 128 | 34 | 3 | 530 | 7 | 116 |
| Tennessee | 241 | 3,154 | 398 | 754 | 72 | 2,305 | 197 | 382 | 43 | 3,093 | 555 | 663 | 26 | 8,746 | 1,207 | 3,382 |
| Texas | 555 | 7,225 | 1,379 | 2,266 | 177 | 6,054 | 1,271 | 1,896 | 118 | 8,254 | 2,505 | 2,161 | 77 | 15,463 | 2,869 | 5,593 |
| Utah | 74 | 915 | 97 | 240 | 23 | 751 | 113 | 164 | 15 | 1,010* | 129 | 152 | 9 | 1,792 | 437 | 271 |
| Vermont | 30 | 363 | 53 | 68 | 5 | 158 | 42 | 32 | 4 | 270 | 12 | 61 | 1 | 210 | 150 | 27 |
| Virginia | 268 | 3,304 | 562 | 629 | 85 | 2,996 | 606 | 523 | 36 | 2,570 | 529 | 486 | 30 | 13,116 | 870 | 1,436 |
| Washington | 293 | 3,737 | 615 | 784 | 98 | 3,295 | 487 | 578 | 47 | 3,191 | 592 | 655 | 32 | 5,463 | 705 | 1,872 |
| West Virginia | 181 | 2,301 | 207 | 562 | 57 | 1,947 | 405 | 370 | 14 | 985 | 124 | 233 | 18 | 4,000 | 108 | 639 |
| Wisconsin | 392 | 5,131 | 919 | 1,012 | 115 | 3,948 | 840 | 578 | 72 | 4,792 | 712 | 671 | 36 | 7,130 | 2,264 | 1,128 |
| Wyoming | 34 | 470 | 103 | 183 | 15 | 541 | 114 | 186 | 2 | 108 | 14 | 24 | 2 | 259 | 49 | 64 |
| TOTALS | 14,749 | 191,274 | 33,741 | 46,851 | 4,777 | 181,976 | 34,904 | 33,779 | 2,359 | 158,886 | 35,983 | 31,006 | 1,660 | 506,598 | 74,017 | 116,379 |

# Truck Specifications Table

## OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY

## COMMERCIAL CAR JOURNAL

## Key to Definitions, References and Abbreviations

### DEFINITIONS

**MAKE AND MODEL**
Only Domestic Truck Models are listed.

**OPTIONAL UNITS**
For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

**CHASSIS LIST PRICE**
The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

**RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE**
The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

**CHASSIS WEIGHT**
The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

**STANDARD TIRE SIZE**
The standard tire size listed is that which is included in the Chassis List Price.

**MAXIMUM AUTHORIZED TIRE SIZE**
The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

**MINIMUM STANDARD WHEELBASE**
The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

**MAXIMUM STANDARD WHEELBASE**
The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

**MAXIMUM BRAKE HP.**
Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

**GEAR RATIO RANGE**
Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

**TRACTORS**
Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

### KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.

(2) International Harvester—Specifications shown represent only the basic standard chassis units and standard chassis ratings in keeping with definitions established by Commercial Car Journal. Optional units not shown such as engines, clutches, transmissions, axles or axle ratios, brakes, wheels and tires, frames or frame reinforcements, optional wheelbases or any other units which make up part of the truck chassis and which International will furnish and approve from the factory as optional equipment can or will change either the ratings, chassis weight shown or performance of the truck as indicated by this list.

Also the company reserves the privileges of assigning special gross vehicle ratings for any chassis providing in the opinion of its engineering department, the type of service justifies the new rating without decreasing the safety factor designed into the truck.

(a)—Available with Two-Speed Axle designated KBS Models.

### KEY TO ABBREVIATIONS

#### MAKES—ALL
B—Bendix
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
H—Hotchkiss.
Her—Hercules.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer
T or Tim—Timken.
Tw—Timken-Westinghouse
TW—Timken-Wisconsin.
WQ—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Ws—Westinghouse.
WW—Westinghouse or Wagner

#### WHEELS DRIVEN
2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

#### BRAKES—SERVICE
**Location**
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

**Type**
I—Internal.
X—External.

**Operation**
A—Air.
H—Hydraulic.
V—Vacuum.
D or Dp—Dual Primary

#### BRAKES—HAND
**Location**
C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

**Type**
D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

#### BRAKE DRUMS
**Material**
a—Cast alloy iron.
A—American Car Foundry
c—Cast iron.
Cc—Composite Front, Cast Iron in rear.
Cl—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.
(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

#### FRAME
**Type**
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.
Z—Reinforced (X) member frame, box type sections.

#### REAR AXLE
**Final Drive and Type**
B—Bevel.
CD—Chain Drive
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating
T—Torque Tube

#### GEAR RATIOS
(**) Only one ratio.

**Drive and Torque**
H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods
T—Torque Arm.

#### GOVERNOR STANDARD
Y—Yes.
N—No.

(Continued from Page 109)

| Line Number | MAKE AND MODEL | Chassis List Price | WHEEL-BASE Minimum Standard | WHEEL-BASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES D-dual rear S-single rear Standard Front and Rear | TIRE SIZES Maximum Authorized Tire Size (Unless noted) | ENGINE DETAILS Make and Model | No. of Cylinders; Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings Number, Diameter and Length | Governor Standard | TRANS-MISSION Make and Model | TRANS-MISSION Forward Sp'ds | REAR AXLE Make and Model | REAR AXLE Gear and Type | REAR AXLE Drive & Torque | REAR AXLE Gear Ratio Range in High | FRONT AXLE Make and Model | BRAKES SERVICE Make Location Type Operat'n | BRAKES SERVICE Lining Area | BRAKES SERVICE Drum Area | BRAKES SERVICE Drum Material | BRAKES Hand Location Type | C-A Dimensions (Min. Std. W. B.) | FRAME Side Rail Dimensions | FRAME Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Available | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | .....C8200-8P | ..... | 126 | 133 | 15000 | ..... | 7.00/20D | 7.50/20 | Wau 6BM | 6–3½x4½ | 263 | 5.9 | 180 | 78–2800 | 7–2¼x10¼ | N | WG T9 | 4 | Tim 53440H | 8F | H | ** –6.67 | Tim 32502H | L4IH | ..... | ..... | s | TX | Opt | 10x3x¼ | T |
| 2 | .....C-250-8P | ..... | 105 | .... | 18000 | ..... | 7.50/20D | 8.25/20 | Wau 6BZ | 6–4x4½ | 320 | 5.9 | 210 | 95–2500 | 7–2¼x10¼ | N | Fu 5A330 | 5 | Tim 54411H | 8F | R | 6.83–7.4 | Tim 32502H | L4IH | 334 | 583 | s | TX | Opt | 10x3x¼ | T |
| 3 | .....C8-250-8P | ..... | 105 | .... | 20000 | ..... | 8.25/20D | 9.00/20 | Wau 6BZ | 6–4x4½ | 320 | 5.9 | 210 | 95–2500 | 7–2¼x10¼ | N | Fu 5A330 | 5 | Tim 54411H | 8F | R | 6.83–7.4 | Tim 32502H | L4IH | 334 | 583 | s | TX | Opt | 10x3x¼ | T |
| 4 | ....C8-400-L8P | ..... | 105 | .... | 21500 | ..... | 9.00/20D | 10.00/20 | Wau 6BZ | 6–4x4½ | 320 | 5.9 | 210 | 95–2500 | 7–2¼x10¼ | N | Fu 5A330 | 5 | Tim 56410H | 8F | R | 6.83–7.4 | Tim 35000H | L4IH | 334 | 583 | s | TX | Opt | 12x3x¼ | T |
| 5 | .....C8-500-8P | ..... | 105 | .... | 22000 | ..... | 9.00/20D | 10.00/20 | Wau 6MZA | 6–4¼x4¼ | 404 | 5.9 | 286 | 112–2500 | 7–2¼x12½ | Y | Fu 5F430 | 5 | Tim 56410H | 8F | R | 6.83–7.4 | Tim 35000H | L4IH | 334 | 583 | s | TX | Opt | 12x3x¼ | T |
| 6 | .....C8-550-8P | ..... | 105 | .... | 24000 | ..... | 9.00/20D | 10.00/20 | Wau 6MZA | 6–4¼x4¼ | 404 | 5.9 | 286 | 112–2500 | 7–2¼x12½ | Y | Fu 5F430 | 5 | Tim 58300H | 8F | R | 6.83–7.4 | Tim 35000H | L4IH | 380 | 660 | s | TX | Opt | 12x3x¼ | T |
| 7 | .....C8-550-8PX | ..... | 112 | .... | 32000 | ..... | 10.00/20D | 11.00/20 | Wau 6MZA | 6–4¼x4¼ | 404 | 5.9 | 286 | 112–2500 | 7–2¼x12½ | Y | Fu 5F430 | 5 | Tim 8200H | 2F | R | ** –7.84 | Tim 26450H | L4IH | 570 | 1051 | s | TX | Opt | 14x3x¼ | T |
| 8 | .....C8-600 | ..... | Opt | Opt | 36000 | ..... | 11.00/20 | 11.00/24 | Wau 6BRKR | 6–4⅝x5½ | 5175 | 5.9 | 365 | 125–2300 | 7–2¼x12½ | Y | Fu 5F430 | 5 | Tim 8200PA | 2F | R | ** –7.84 | Tim 27452TW | L4IH | 722 | 1051 | s | TX | Opt | 14x3x¼ | T |
| 9 | .....C8-600-8P | ..... | Opt | Opt | 40000 | ..... | 11.00/20 | 11.00/24 | Wau 145GK | 6–5¼x6 | 7795 | 6.5 | 590 | 186–2000 | 7–3¼x17¾ | Y | Spi 7841▽ | 8 | Tim 8200PA | 2F | R | 6.42–7.84 | Tim 27452TW | L4IH | 722 | 1051 | s | TD | Opt | 14x3x¼ | T |
| 10 | (D)C8-600-8P.Opt. | ..... | Opt | Opt | 40000 | ..... | 11.00/20 | 11.00/24 | Cum HB600 | 6–4½x6 | 672 | 17. | 510 | 150–1800 | 7–4½x16½ | Y | Spi 7841▽ | 8 | T 8W3012PA | WF | R | ** –6.16 | Tim 27452TW | L4IH | ..... | ..... | A | TD | Opt | 14x3x¼ | T |
| 11 | Biederman...N8H | ..... | 130 | 190 | 21000 | '6070 | 8.25/20D | 10.00/20 | Her JXLD | 6–4x4½ | 339 | 6.9 | 272 | 131–3200 | 7–2½x10‡‡ | N | Fu 5A330 | 5 | TimH700DPH | 8F | H | ** –7.2 | Tim 35000HX | LH4IH | 514 | 744 | G | T | 60 | 9x3x¼ | C |
| 12 | .....N8D | ..... | 130 | 190 | 21000 | 6070 | 8.25/20D | 10.00/20 | Her JXLD | 6–4x4½ | 339 | 6.9 | 272 | 131–3200 | 7–2½x10‡‡ | N | Fu 5A330 | 5 | TimH700DPH | 2D | H | 6.13–8.15 | Tim 35000HX | LH4IH | 514 | 744 | G | T | 60 | 9x3x¼ | |
| 13 | Chevrolet.....FP | 790 | 116 | .... | 4600 | ..... | 6.00/16S | 15S | O-Thrift Mas. | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | N | Own | 3 | Own | Hy‖ | T | ** –4.11 | Own | O41H | 159 | 242 | Co | 2I | 39 | 5¼x2¼x⅜ | C |
| 14 | .....FR | 885 | 125 | .... | ♦5800 | ..... | 15S | 7.00/17S | O-Thrift Mas. | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | N | Own | 3 | Own | HyF | H | ** –4.57 | Own | O41H | 178 | 272 | Co | 2I | 48¼ | 5½x2¼x⅜ | C |
| 15 | .....FS | 930 | 137 | .... | 8800 | ..... | 7.00/17S | 7.00/18 | O-Thrift Mas. | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | N | Own | 4 | Own | HyF | H | ** –5.14 | Own | O41H | 243 | 371 | Co | 2I | 60 | 7x2¼x⅜ | C |
| 16 | .....RJ | 1020 | 137 | .... | 12500 | ..... | 7.00/20S | 7.50/20 | O-Thrift Mas.:: | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | N | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84 | 7x2¼x⅜ | C |
| 17 | .....RK | 1050 | 161 | .... | 13000 | ..... | 7.00/20S | 7.50/20 | O-Thrift Mas.:: | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | N | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84 | 8¼x2¼x¼ | C |
| 18 | (School bus) .RL | 1195 | 161 | .... | 12000 | ..... | 6.50/20D | 7.00/20 | O-Thrift Mas.:: | 6–3½x3¾ | 216 | 6.5 | 174 | 90–3300 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | ..... | 8¼x2¼x¼ | C |
| 19 | .....RVS | 1410 | 137 | .... | 15000 | ..... | 7.50/20D | 8.25/20▲ | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 192 | 93–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 60 | 8¼x2¼x¼ | C |
| 20 | .....RWS | 1430 | 161 | .... | 15000 | ..... | 7.50/20D | 8.25/20▲ | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 192 | 93–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84 | 8¼x2¼x¼ | C |
| 21 | (c.o.e.) ....RPS | •1715 | 110 | .... | 15000 | ..... | 7.50/20D | 8.25/20▲ | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 60¼ | 8¼x2¼x¼ | C |
| 22 | (c.o.e.) ....RPS | •1755 | 134 | .... | 15000 | ..... | 7.50/20D | 8.25/20▲ | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84½ | 8¼x2¼x¼ | C |
| 23 | (c.o.e.) ....RSS | •1775 | 158 | .... | 15000 | ..... | 7.50/20D | 8.25/20▲ | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 108½ | 8¼x2¼x¼ | C |
| 24 | (c.o.e.) .....RF | •1715 | 110 | .... | 16000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 60¼ | 8¼x2¼x¼ | C |
| 25 | (c.o.e.) .....RR | •1755 | 134 | .... | 16000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84½ | 8¼x2¼x¼ | C |
| 26 | (c.o.e.) .....RS | •1775 | 158 | .... | 16000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 189 | 90–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 108½ | 8¼x2¼x¼ | C |
| 27 | .....RV | 1410 | 137 | .... | 16000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 192 | 93–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 60 | 8¼x2¼x¼ | C |
| 28 | .....RW | 1430 | 161 | .... | 16000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 192 | 93–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | 84 | 8¼x2¼x¼ | C |
| 29 | (School bus) .RX | 1475 | 199 | .... | 15000 | ..... | 7.50/20D | 8.25/20 | O-Load Mas. | 6–3⅛x3‡‡ | 235 | 6.6 | 192 | 93–3100 | 4– ♦ ♦ | Y | Own | 4 | Own | HyF | H | 6.17 | Own | O41H | 330 | 478 | Co | 2I | ..... | 8‡‡x2‡‡x⅜ | C |
| 30 | Corbitt■.....18BG | ..... | 181 | .... | 18000 | ..... | 9.00/20 | 10.00/20 | Con M6330 | 6–4x4⅜ | 330 | 6.1 | 246 | 104–2800 | 7–2¼x12 | Y | Cla 205V | 5 | TimH100DPH | .... | H | **–5.29 | Tim 32502H | B4IHV | ..... | ..... | s | TX | ..... | 8x3¼x1¼ | T |
| 31 | .....22BG | ..... | 190 | .... | 22000 | ..... | 10.00/20 | 10.00/22 | Con B6371 | 6–4½x4⅝ | 371 | 6.0 | 280 | 100–2600 | 7–2⅞x13½ | Y | Fu 5A43 | 5 | Tim L100DPH | .... | H | **–5.29 | Tim 35000H | B4IHV | ..... | ..... | s | TX | ..... | 8x3¼x1¼ | T |
| 32 | .....25BG | ..... | 200 | .... | 25000 | ..... | 10.00/22 | 11.00/22 | Con B6427 | 6–4⅝x4½ | 4275 | 5.9 | 325 | 127–2600 | 7–2½x13½ | Y | Fu 5A43 | 5 | Tim Q100P | .... | H | **–6.17 | Tim 35100TW | Ws4IA | ..... | ..... | s | TX | ..... | 8½x3¼x⅜ | T |
| 33 | (T) .....18TG | ..... | 137 | .... | 18000 | ..... | 9.00/20 | 10.00/20 | Con M6330 | 6–4x4⅜ | 330 | 6.1 | 246 | 104–2800 | 7–2¼x12 | Y | Cla 205V | 5 | Tim H100P‡‡ | .... | H | **–5.29 | Tim 32505TW | Ws4IA | ..... | ..... | s | TX | ..... | 7½x3¼x⅜ | T |
| 34 | (T) .....H18TG | ..... | 137 | .... | 18000 | ..... | 10.00/20 | ..... | Con M6330 | 6–4x4⅜ | 330 | 6.1 | 246 | 104–2800 | 7–2¼x12 | Y | Cla 205V | 5 | Tim L100P‡‡ | .... | H | **–5.29 | Tim 32505TW | Ws4IA | ..... | ..... | s | TX | ..... | 7½x3¼x⅜ | T |
| 35 | (T) .....22TG | ..... | 144 | .... | 22000 | ..... | 10.00/20 | 10.00/22 | Con B6427 | 6–4⅝x4¼ | 4275 | 5.9 | 325 | 127–2600 | 7–2½x13½ | Y | Fu 5A43 | 5 | Tim L100P‡‡ | .... | H | **–5.29 | Tim 35000TW | Ws4IA | ..... | ..... | s | TX | ..... | 8x3¼x¼ | T |
| 36 | (T) .....H22TG | ..... | 144 | .... | 22000 | ..... | 10.00/22 | ..... | Con B6427 | 6–4⅝x4½ | 4275 | 5.9 | 325 | 127–2600 | 7–2½x13½ | Y | Fu 5A43 | 5 | Tim Q100P‡‡ | .... | H | **–5.29 | Tim 35100TW | Ws4IA | ..... | ..... | s | TX | ..... | 8x3¼x¼ | T |
| 37 | (T) .....25TG | ..... | 148 | .... | 25000 | ..... | 10.00/22 | 11.00/22 | Con R6513 | 6–4½x5⅝ | 5135 | 5.9 | 400 | 170–2600 | 7–3¼x— | Y | Spi 6253 | .. | Tim Q100P‡‡ | .... | H | **–6.17 | Tim 35100TW | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 38 | (T) .....H25TG | ..... | 148 | .... | 25000 | ..... | 10.00/22 | ..... | Con R6513 | 6–4½x5⅝ | 5135 | 5.9 | 400 | 170–2600 | 7–3¼x— | Y | Spi 6253 | .. | Tim R100P‡‡ | .... | H | **–6.17 | Tim 35100TW | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 39 | (T) .....28TG | ..... | 147 | .... | 28000 | ..... | 10.00/22 | 11.00/24 | Con R6602 | 6–4½x5⅝ | 6025 | 5.9 | 434 | 199–2600 | 7–3¼x— | Y | Fu 5A650 | .. | Tim S200P‡‡ | .... | H | **–6.42 | Tim 26450TW | Ws4IA | ..... | ..... | s | 2D | ..... | 8½x3¼x⅜ | T |
| 40 | (D) (T) .....22TD | ..... | 144 | .... | 22000 | ..... | 10.00/22 | 10.00/22 | Her DWXD | 6–4¼x4½ | 404 | 15 | 320 | 135–2600 | ..... | Y | Fu 5A430 | .. | Tim L300P | .... | H | 6.32–8.20 | Tim 35000TW | Ws4IA | ..... | ..... | s | TX | ..... | 8x3¼x¼ | T |
| 41 | (D) (T) .....H22TD | ..... | 144 | .... | 22000 | ..... | 10.00/22 | ..... | Her DWXD | 6–4¼x4¼ | 404 | 15 | 320 | 135–2600 | ..... | Y | Fu 5A430 | .. | Tim Q300P | .... | H | 6.53–8.53 | Tim 35100TW | Ws4IA | ..... | ..... | s | TX | ..... | 8x3¼x¼ | T |
| 42 | (D) (T) .....25TD | ..... | 148 | .... | 25000 | ..... | 11.00/20 | 11.00/22 | Her DRXC | 6–4⅜x5¼ | 529 | 14 | 400 | 148–2200 | 7–3½x13¾ | Y | Spi 6253 | .. | Tim Q300P | .... | H | 6.53–8.53 | Tim 35000TW | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 43 | (D) (T) .H25TD | ..... | 148 | .... | 25000 | ..... | 10.00/22 | ..... | Her DRXC | 6–4¼x5¼ | 529 | 14 | 400 | 148–2200 | 7–3½x13¾ | Y | Spi 6253 | .. | Tim R300P | .... | H | 6.53–8.53 | Tim 35000TW | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 44 | (D) (T) .....27TD | ..... | 152 | .... | 27000 | ..... | 10.00/22 | 11.00/24 | Cum HB600 | 6–4⅞x6 | 672 | 17 | 500 | 150–1800 | 7–4½x16½ | Y | Fu 5A920 | .. | Tim Q100P‡‡ | .... | H | 5.29 | Tim 26450W | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 45 | (D) (T) .H27TD | ..... | 152 | .... | 27000 | ..... | 10.00/22 | ..... | Cum HB600 | 6–4⅞x6 | 672 | 17 | 500 | 150–1800 | 7–4½x16½ | Y | Fu 5A920 | .. | Tim R300P | .... | H | 4.92–6.42 | Tim 26450W | Ws4IA | ..... | ..... | s | 2 | ..... | 8½x3¼x⅜ | T |
| 46 | (D) (T) .....28TD | ..... | 155 | .... | 28000 | ..... | 10.00/22 | 11.00/24 | Cum NHB600 | 6–5½x6 | 743 | 15 | 575 | 200–2100 | ..... | Y | Fu 5A920 | .. | Tim S200P‡‡ | .... | H | 6.42 | Tim 26450W | Ws4IA | ..... | ..... | s | 2D | ..... | 8½x3¼x⅜ | T |
| 47 | Crosley.....B | ..... | 80 | .... | 1680 | ..... | 4.50/12 | ..... | Own CE7 | 4–2½x2¼ | 44 | 7.5 | 33 | 26–5400 | 5–♦ | .. | WG-ASI-T92 | 3 | Spi | 2F | .... | ** –5.17 | Own | Haw M | 64 | 72 | C | ..... | ..... | ..... | ..... | ..... |
| 48 | Dodge.....B-1-B | ..... | 108 | 108 | 4850 | ..... | 6.00/16-8 | 6.50/16-8 | Own T-142 | 6–3¼x4¾ | 217 | 6.6 | 172 | 95–3600 | 4–2½x4.8 | N | NP-39750 | 3 | Own T-142 | HyS | H | 4.1–4.7 | Own T-142 | O41H | 174 | 264 | Ce | TX | 40 | ⅜x2⅜x6⅜ | C |
| 49 | .....B-1-C | ..... | 116 | 116 | 5500 | ..... | TA-15-S | TA-15-S | Own T-144 | 6–3¼x4½ | 217 | 6.6 | 172 | 95–3600 | 4–2½x4.8 | N | NP-39750 | 3 | Own T-144 | HyS | H | 4.1–4.7 | Own T-144 | O41H | 184 | 276 | Ce | TX | 48 | ⅜x2⅜x6⅜ | C |
| 50 | .....B-1-D | ..... | 116 | 126 | 7500 | ..... | 6.00/16S▲ | 6.00/20 | Own T-146 | 6–3¼x4½ | 230 | 6.7 | 184 | 102–3600 | 4–2½x4.8 | N | NP-39980 | 3 | Own T-146 | HyS | H | 3.9–4.8 | Own T-146 | O41H | 212 | 316 | Ce | TX | 48 | ⅜x2⅜x6½ | C |
| 51 | .....B-1-FL | ..... | 128 | 152 | 9000 | ..... | 6.00/20S‡ | 6.50/20 | Own T-148 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Own T-148 | HyF | H | 5.6–6.8 | Own T-148 | O41H | 336 | 479 | Ce | TX | 60 | 21x2¾x7 | C |
| 52 | .....B-1-F | ..... | 128 | 192 | 14500 | ..... | 6.00/20S‡ | 7.50/20 | Own T-148 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Own T-148 | HyF | H | 5.6–6.8 | Own T-148 | O41H | 336 | 479 | Ce | TX | 60 | 21x2¾x7 | C |
| 53 | .....B-1-FA | ..... | 128 | 192 | 14500 | ..... | 6.50/20–D | 7.50/20 | Own T-148 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-148 | O41H | 336 | 479 | Ce | TX | 60 | 21x2¾x7 | C |
| 54 | .....B-1-H | ..... | 128 | 192 | 15500 | ..... | 7.00/20▲ | 8.25/20 | Own TX-148 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Own TX-148 | HyF | H | 5.6–6.8 | Own TX-148 | O41HV | 336 | 479 | Ce | TX | 60 | 21x2¾x7 | C |
| 55 | .....B-1-HA | ..... | 128 | 192 | 15500 | ..... | 7.00/20▲ | 8.25/20 | Own TX-148 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own TX-148 | O41HV | 336 | 479 | Ce | TX | 60 | 21x2¾x7 | C |
| 56 | .....B-1-FM | ..... | 107 | 161 | 14750 | ..... | 6.00/20‡8 | 7.50/20 | Own T-152 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-88070 | 4 | Own T-152 | HyF | H | 5.6–6.8 | Own T-152 | O41H | 336 | 479 | Ce | TX | 60 | ⅜x2¾x7 | C |
| 57 | .....B-1-FMA | ..... | 107 | 161 | 14750 | ..... | 6.50/20–D | 7.50/20 | Own T-152 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-88070 | 4 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-152 | O41H | 336 | 479 | Ce | TX | 60 | ⅜x2¾x7 | C |
| 58 | .....B-1-HM | ..... | 107 | 161 | 15750 | ..... | 7.00/20▲ | 8.25/20 | Own TX-152 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-88070 | 4 | Own TX-152 | HyF | H | 5.6–6.8 | Own TX-152 | O41HV | 336 | 479 | Ce | TX | 60 | ⅜x2¾x7 | C |
| 59 | .....B-1-HMA | ..... | 107 | 161 | 15750 | ..... | 7.00/20▲ | 8.25/20 | Own TX-152 | 6–3⅛x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-88070 | 4 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own TX-152 | O41HV | 336 | 479 | Ce | TX | 60 | ⅜x2¾x7 | C |
| 60 | .....B-1-JL | ..... | 128 | 212 | 16500 | ..... | 6.00–20D | 8.25/20 | Own T-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Own T-150 | HyF | H | 6.2–7.1 | Own T-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 61 | .....B-1-JAL | ..... | 128 | 212 | 16500 | ..... | 6.00/20D | 8.25/20 | Own T-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 62 | .....B-1-KAL | ..... | 128 | 212 | 17000 | ..... | 8.25/20‡ | 9.00/20* | Own TX-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Eat A5-1350 | SFd | H | 6.1–8.5 | Own TX-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 63 | .....B-1-JML | ..... | 107 | 161 | 16750 | ..... | 6.00/20D | 8.25/20 | Own T-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Own T-154 | HyF | H | 6.2–7.1 | Own T-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 64 | .....B-1-JMAL | ..... | 107 | 161 | 16750 | ..... | 6.00/20D | 8.25/20 | Own T-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 65 | .....B-1-KMAL | ..... | 107 | 161 | 17250 | ..... | 8.25/20‡ | 9.00/20* | Own TX-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Eat A5-1350 | SFd | H | 6.1–8.5 | Own TX-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 66 | .....B-1-J | ..... | 128 | 212 | 16500 | ..... | 6.50/20D | 8.25/20 | Own T-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Own T-150 | HyF | H | 6.2–7.1 | Own T-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 67 | .....B-1-JA | ..... | 128 | 212 | 16500 | ..... | 6.50/20D | 8.25/20 | Own T-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 68 | .....B-1-KA | ..... | 128 | 212 | 17000 | ..... | 8.25/20‡ | 9.00/20* | Own TX-150 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Eat 13500 | SFd | H | 6.1–8.5 | Own TX-150 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 69 | .....B-1-JM | ..... | 107 | 161 | 16750 | ..... | 6.50/20D | 8.25/20 | Own T-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Own T-154 | HyF | H | 6.2–7.1 | Own T-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 70 | .....B-1-JMA | ..... | 107 | 161 | 16750 | ..... | 6.50/20D | 8.25/20 | Own T-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Eat A5-1350 | SFd | H | 5.8–8.1 | Own T-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 71 | .....B-1-KMA | ..... | 107 | 161 | 17250 | ..... | 8.25/20‡ | 9.00/20* | Own TX-154 | 6–3⅛x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-88090 | 5 | Eat 16500 lb. | SFd | H | 6.1–8.5 | Own TX-154 | O41HV | 396 | 553 | C | TX | 60 | ⅜x2⅜x8⅜ | C |
| 72 | .....B-1-R | ..... | 130 | 229 | 18500 | ..... | 7.50/20D | 9.00/20 | Own T-156 | 6–3¾x4½ | 281 | 6.4 | 225 | 115–3200 | 7–3x11.2 | Y | NP-38100 | 5 | TimH100DPH | HyF | H | 6.8–8.1 | Own T-156 | O41HV | 396 | 609 | C | TX | 60 | ⅜x2⅜x9‡‡ | C |
| 73 | .....B-1-RA | ..... | 130 | 229 | 18500 | ..... | 7.50/20D | 9.00/20 | Own T-156 | 6–3¾x4½ | 281 | 6.4 | 225 | 115–3200 | 7–3x11.2 | Y | NP-38100 | 5 | Tim H-300 | HyF | H | 6.1–8.8 | Own T-156 | O41HV | 396 | 609 | C | TX | 60 | ⅜x2⅜x9‡‡ | C |
| 74 | .....B-1-T | ..... | 130 | 190 | 21000 | ..... | 8.25/20‡ | 10.00/20 | Own T-158 | 6–3¾x5 | 331 | 6.5 | 270 | 128–3000 | 7–3x11.2 | Y | NP-38110 | 5 | Tim L-100 | HyF | H | 6.8–8.2 | Tim 32516A1 | O41HV | 424 | 666 | C | TX | 60 | ¼x3x10 | C |

(Turn to Page 112, Please)



°—Rear only; front 8.25/20.
‡‡—Two speed axles available.
▲—Chevrolet own rear axle (5.43:1) available on Models RJ-RK-RL. Chevrolet own 2-speed rear axle (6.13-8.10:1) available at extra cost on Models RV8-RW8-RP-RP8-RR-RRS-RS-RS8-RV-RW-RX.

♦—7.50/17 tire is optional for Rear or Front and Rear, with no increase in G.V.W.
▽—With Spi 703A with 3 forward speeds.
‡—Front only; Rear 6.50/20S.
‡‡—7.50/20 can be used on the front with no change in 15000 G.V.W.
::—Own Loadmaster engine available on models QJ-QK-QL at extra cost.

‡—Rear only; front 7.50/20.
▲—Front only; Rear 7.00/16S.
■—Sleeper cab models available in 25-27-28 Series with 25 inch longer wheelbase.
♦—1|Front 1.375x1.312; 3 Center1.375x.870; 1 Rear 1.500x1.499.

♦♦—Diameter: Front, 2.6870; Front Center, 2.7180; Rear Center, 2.7490; Rear, 2.7800; Total length, 5¼.
•—Includes cab.
▽—Includes weight of spare tire which is not included for all other models.
‡—Front only; Rear 7.50/20D.

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Bendix-Weiss Constant Velocity Universal Joint
Bendix Vacuum Power Gear Shift Assistor
B-K * Power Braking System for Trucks and Trailers

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**BENDIX PRODUCTS**

**DIVISION of** Bendix AVIATION CORPORATION

**SOUTH BEND 20, INDIANA**

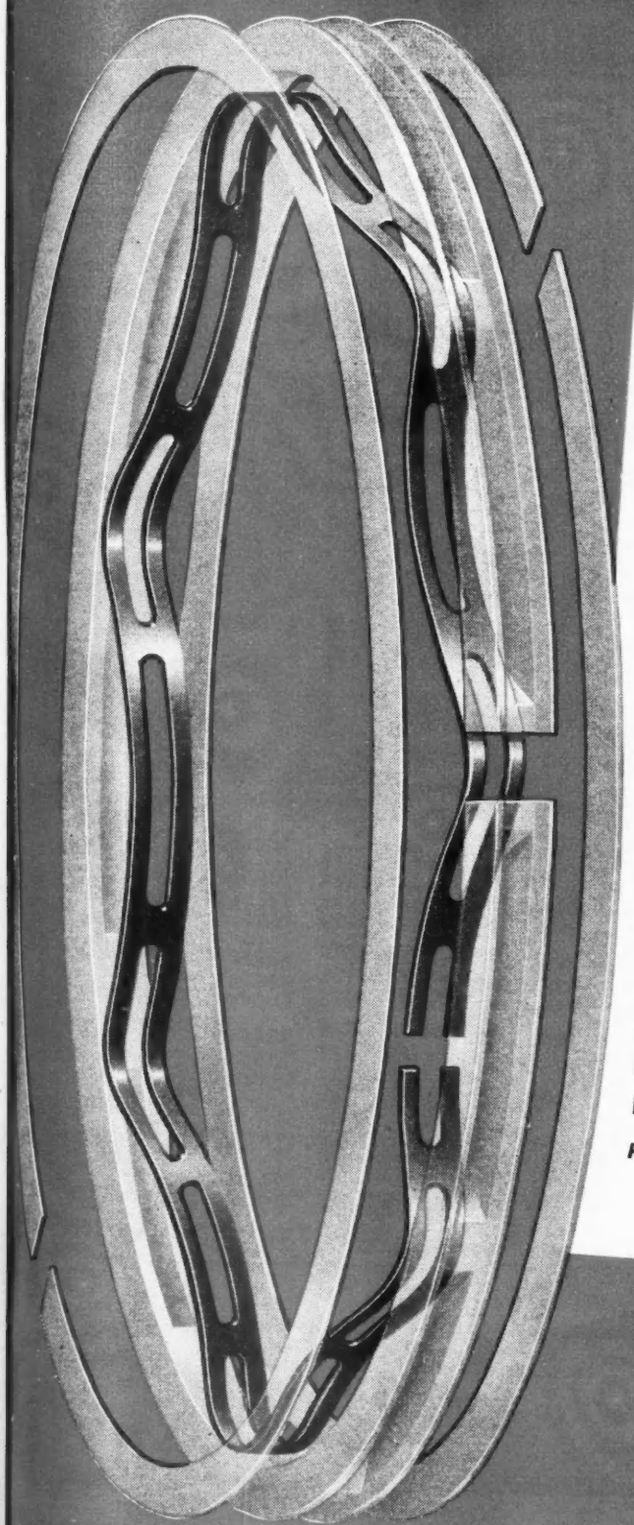
(Continued from Page 110)

| Line Number | MAKE AND MODEL | Chassis List Price | WHEELBASE Minimum Standard | WHEELBASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES D-dual rear S-single rear Standard Front and Rear | TIRE SIZES Maximum Authorized Tire Size (Due to loadings noted) | ENGINE DETAILS Make and Model | No. of Cylinders, Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings Number, Diameter and Length | Governor Standard | TRANSMISSION Make and Model | TRANSMISSION Forward Sp'ds | REAR AXLE Make and Model | REAR AXLE Gear and Type | REAR AXLE Drive & Torque | REAR AXLE Gear Ratio Range In High | FRONT AXLE Make and Model | BRAKES SERVICE Make | BRAKES SERVICE Location | BRAKES SERVICE Type Operat'n | BRAKES SERVICE Lining Area | BRAKES SERVICE Drum Area | BRAKES SERVICE Drum Material | BRAKES Hand Location Type | C-A Dimension (Min. Std. W. B.) | FRAME Side Rail Dimensions | FRAME Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dodge Cont'd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | B-1-TA | | 130 | 190 | 21000 | | 8.25/20▲ | 10.00/20 | Own T-158 | 6–3¾x5 | 331 | 6.5 | 270 | 128–3000 | 7–3x11.2 | Y | NP-38110 | 5 | Tim L-300 | HyF | H | 6.3–9.1 | Tim 32516A1 | O4IHV | 424 | 666 | C | TX | 60 | ¼x3x10 | C |
| 2 | B-1-V | | 130 | 190 | 23000 | | 10.00/20† | 11.00/20 | Own T-158 | 6–3¾x5 | 331 | 6.5 | 270 | 128–3000 | 7–3x11.2 | Y | NP-38110 | 5 | Tim Q-100 | HyF | H | 6.8–8.5 | Tim 35020-NX9 | O4IHV | 485 | 770 | C | TX | 60 | ¼x3x10 | C |
| 3 | B-1-VA | | 130 | 190 | 23000 | | 10.00/20 | 11.00/20 | Own T-158 | 6–3¾x5 | 331 | 6.5 | 270 | 128–3000 | 7–3x11.2 | Y | NP-38110 | 5 | Tim Q-300 | HyF | H | 6.5–9.5 | Tim 35020-NX9 | O4IHV | 485 | 770 | C | TX | 60 | ¼x3x10 | C |
| | School Buses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Dodge..B-1-FS-152 | | 152 | 192 | 11750 | | 6.50/20D | 7.00/20 | Own T-148 | 6–3 7/16x4¼ | 236 | 6.6 | 192 | 109–3600 | 4–2½x5.054 | N | NP-39670 | 4 | Own T-148 | HyF | H | 5.6–6.8 | Own T-148 | O4IH | 336 | 479 | Ce | TX | ..... | 21x2¾x7 | C |
| 5 | B-1-JS-212 | | 212 | 212 | 17000 | | 7.50/20D | 8.25/20 | Own T-150 | 6–3½x4½ | 250 | 6.6 | 204 | 114–3600 | 4–2½x5.054 | Y | NP-38910 | 5 | Own T-150 | HyF | H | 6.2–7.1 | Own T-150 | O4IHV | 396 | 553 | C | TX | ..... | ⅛x2⅞x8⅜ | C |
| 6 | B-1-RS-229 | | 229 | 229 | 19000 | | 8.25/20D | 9.00/20 | Own T-156 | 6–3¾x4¼ | 281 | 6.4 | 225 | 115–3200 | 7–3x11.2 | Y | NP-38100 | 5 | TimH100DPH | HyF | H | 6.8–8.1 | Own T-156 | O4IHV | 396 | 609 | C | TX | ..... | ⅛x2⅜x9½ | C |
| 7 | Duplex.....T | | 136 | 220 | 18000 | 6600 | 8.25/20 | 9.00/20 | Her JXD | 6–4x4¼ | 320 | 6.2 | 240 | 113–3000 | 7–2½x10‡‡ | Y | Fu 5B330 | 5 | Tim H100 | B | H | ** –7.20 | Tim 32502 | L4IHV | 420 | 654 | A | TX | 59 | 9½–3½x⅛ | C |
| | TH-404 | | 136 | 154 | 18000 | 6900 | 8.25/20 | 9.00/20 | Her WXLC3 | 6–4¼x4¾ | 404 | 5.8 | 312 | 139–2600 | 7–2½x10‡‡ | | FU–5A430 | 5 | Tim H-300 | DF | H | 6.13–8.15 | Tim 32502 | L41HV | 420 | 654 | A | TX | 59 | 9½x3½x⅛ | C |
| 9 | R | | 136 | 220 | 25000 | 8820 | 9.00/20 | 10.00/20 | Her WXLC-3 | 6–4¼x4¾ | 404 | 5.8 | 312 | 139–2600 | 7–2½x13¾ | | Fu 5A43 | 5 | Tim Q-300 | DF | R | 6.53–8.53 | Tim 35000 | L4IHV | 730 | 1016 | A | TX | 79¼ | 9½x3½x⅛ | C |
| 10 | JHA | | 148 | 220 | 28000 | 9800 | 10.00/20D | 11.00/20 | Her RXB | 6–4½x5¼ | 501 | 5.4 | 360 | 121–2200 | 7–3x14 | | Fu 5A620 | 5 | Tim S200 | 2F | R | ** –9.83 | Tim 26450 | Ws4IA | 912 | 1311 | A | TX | 79 | 10⅛x3⅛x⅛ | C |
| 11 | JH-558 | | 148 | 220 | 28000 | 9800 | 10.00/20 | 11.00/20 | Her RXLD | 6–4¾x5¼ | 558 | 6.3 | 430 | 154–2400 | 7–3½x13¼ | | FU–5A650 | 5 | Tim S-300 | DF | R | 6.53–8.53 | Tim 26450 | Ws4IA | 912 | 1311 | A | TX | 79 | 10⅛x3⅛x⅛ | C |
| 12 | KHA | | 148 | 220 | 32000 | 10500 | 11.00/20 | 11.00/20 | Her RXC | 6–4½x5¼ | 529 | 5.4 | 395 | 132–2300 | 7–3x14¼ | | Fu 5A620 | 5 | Tim U-200 | 2F | R | ** –9.83 | Tim 26450 | Ws4IA | 912 | 1311 | A | TX | 79 | 10⅛x3⅛x⅛ | C |
| 13 | L | | 148 | 220 | 36000 | 11100 | 11.00/20 | 11.00/20 | Her RXLD | 6–4¾x5¼ | 558 | 5.4 | 425 | 154–2400 | 7–3½x13¼ | | Fu 5C650 | 5 | Tim U-200 | 2F | R | ** –9.83 | Tim 26450 | Ws4IA | 912 | 1311 | A | TX | 79 | 10⅛x3⅛x⅛ | C |
| 14 | Federal.....16M | | 139 | 194 | 13500 | 4460 | 7.50/20D | 7.50/20 | Her JXEF | 6–3½x4¼ | 245 | 6.5 | 184 | 89–3000 | 7–2½x10‡‡ | N | WG T9 | 4 | T 53547DPH | BF | H | ** –5.66 | Tim 30000HX | L4IHV | 310 | 482 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 15 | 16M2 | | 139 | 194 | 13500 | 4590 | 7.50/20D | 8.25/20D | Her JXEF | 6–3½x4¼ | 245 | 6.5 | 184 | 89–3000 | 7–2½x10‡‡ | N | WG T9 | 4 | TimE300DPH | dF | H | 6.13–8.10 | Tim 30000HX | L41HV | 310 | 482 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 16 | 18M | | 139 | 194 | 15000 | 4700 | 8.25/20D | 8.25/20 | Her JXBF | 6–3⅝x4¼ | 263 | 6.5 | 190 | 96–3000 | 7–2½x10‡‡ | N | WG T9 | 4 | TimE100DPH | SF | H | ** –6.20 | Tim 30003H | LT4IHV | 314 | 532 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 17 | 18M2 | | 139 | 194 | 15000 | 4830 | 8.25/20D | 8.25/20 | Her JXBF | 6–3⅝x4¼ | 263 | 6.5 | 190 | 96–3000 | 7–2½x10‡‡ | N | WG T9 | 4 | TimE300DPH | dF | H | 6.13–8.10 | Tim 30003H | LT4IHV | 314 | 532 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 18 | 25M | | 139 | 194 | 17500 | 4950 | 8.25/20D | 9.00/20 | Her JXCF | 6–3¾x4¼ | 282 | 6.5 | 212 | 102–3000 | 7–2½x10‡‡ | N | Cla 205VO | 5 | TimH100DPH | SF | H | ** –6.80 | Tim 3100H | LT4IHV | 346 | 583 | a | TX | 60 | 8⅛x2⅛x¼ | T● |
| 19 | 25M2 | | 139 | 194 | 17500 | 5100 | 8.25/20D | 9.00/20 | Her JXCF | 6–3¾x4¼ | 282 | 6.5 | 212 | 102–3000 | 7–2½x10‡‡ | N | Cla 205VO | 5 | TimH300DPH | dF | H | 6.13–8.15 | Tim 3100H | LT4IHV | 346 | 583 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 20 | 29M | | 139 | 194 | 20000 | 5500 | 9.00/20D | 10.00/20 | Her JXDF | 6–4x4¼ | 320 | 6.5 | 246 | 112–2800 | 7–2½x10‡‡ | Y | Cla 205V | 5 | Tim L100DPH | SF | H | ** –6.83 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 21 | 29M2 | | 139 | 194 | 20000 | 5690 | 9.00/20D | 10.00/20 | Her JXDF | 6–4x4¼ | 320 | 6.5 | 246 | 112–2800 | 7–2½x10‡‡ | Y | Cla 205V | 10 | Tim L300DPH | dF | H | 6.32–8.22 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60 | 8⅛x2⅛x¼ | T |
| 22 | 29MA | | 155 | 194 | 20000 | 5950 | 9.00/20D | 10.00/20 | Her JXDF | 6–4x4¼ | 320 | 6.5 | 246 | 112–2800 | 7–2½x10‡‡ | Y | Cla 205V♦ | 15 | Tim L100DPH | SF | H | ** –6.83 | Tim 32514H | LT4IHV | 466 | 820 | a | TD | 76 | 8⅛x2⅛x¼ | T |
| 23 | 29ML | | 139 | 194 | 20000 | 5535 | 9.00/20D | 10.00/20 | Here JXLDF | 6–4x4½ | 339 | 6.5 | 250 | 126–2800 | 7–2½x10‡‡ | Y | Cla 205V | 5 | Tim L100DPH | SF | H | ** –6.83 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60 | 8⅛x2⅛x¼ | †T |
| 24 | 29ML2 | | 139 | 194 | 20000 | 5725 | 9.00/20D | 10.00/20 | Here JXLDF | 6–4x4½ | 339 | 6.5 | 250 | 126–2800 | 7–2½x10‡‡ | Y | Cla 205V | 10 | Tim L300DPH | dF | H | 6.32–8.22 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60 | 8⅛x2⅛x¼ | †T |
| 25 | 29MLA | | 155 | 194 | 20000 | 5885 | 9.00/20D | 10.00/20 | Here JXLDF | 6–4x4½ | 339 | 6.5 | 250 | 126–2800 | 7–2½x10‡‡ | Y | Cla 205V | 15 | Tim L100DPH | SF | H | ** –6.83 | Tim 32514H | LT4IHV | 466 | 820 | a | TD | 76 | 8⅛x2⅛x¼ | †T |
| 26 | 35M | | 143 | 203 | 21000 | 6925 | 9.00/20D | 10.00/20 | Con T6371 | 6–4⅛x4⅝ | 371 | 6.6 | 290 | 133–2600 | 7–2⅞x13½ | Y | Cla 270VO | 5 | Tim L100DPH | SF | R | **–6.83 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60½ | 10⅛x3⅛x⅛ | ● |
| 27 | 35M2 | | 143 | 203 | 21000 | 7115 | 9.00/20D | 10.00/20 | Con T6371 | 6–4⅛x4⅝ | 371 | 6.6 | 290 | 133–2600 | 7–2⅞x13½ | Y | Cla 270VO | 10 | Tim L300DPH | dF | R | 6.32–8.22 | Tim 32514H | LT4IHV | 466 | 820 | a | TX | 60½ | 10⅛x3⅛x⅛ | ● T |
| 28 | 45M | | 143 | 203 | 24000 | 8005 | 10.00/22D | 10.00/24 | Con T6427 | 6–4 7/16x4⅞ | 427 | 6.4 | 272 | 155–2600 | 7–2⅞x13½ | Y | Cla 270VO | 5 | Tim Q100P | SF | R | ** –6.83 | Tim 35011TW | TW4IA | 606 | 933 | a | TD | 60½ | 10⅛x3⅛x⅛ | ● T |
| 29 | 45M2 | | 143 | 203 | 24000 | 8380 | 10.00/22D | 10.00/24 | Con T6427 | 6–4 7/16x4⅞ | 427 | 6.4 | 272 | 155–2600 | 7–2⅞x13½ | Y | Cla 270VO | 10 | Tim Q300P | dF | R | 6.53–8.53 | Tim 35011TW | TW4IA | 606 | 933 | a | TD | 60½ | 10⅛x3⅛x⅛ | ● T |
| 30 | 55M2 | | 143 | 203 | 27000 | 8635 | 11.00/22D | 11.00/24 | Con T6427 | 6–4 7/16x4⅞ | 427 | 6.4 | 272 | 155–2600 | 7–2⅞x13½ | Y | Cla 270VO | 10 | Tim S300P | HyF | R | 6.53–8.53 | Tim 36021TW | Tw4IA | 722 | 1051 | a | TD | 60½ | 10⅛x3½x⅛ | T |
| 31 | 55MA | | 155 | 203 | 27000 | 8765 | 11.00/22D | 11.00/24 | Con T6427 | 6–4 7/16x4⅞ | 427 | 6.4 | 272 | 155–2600 | 7–2⅞x13½ | Y | Cla 270V♦ | 15 | Tim S-200P | 2F | R | ** –7.08 | Tim 36021TW | TW4IA | 722 | 1051 | a | TD | 72½ | 10⅛x3⅛x⅛ | ● T |
| 32 | 60MA | | 155 | 203 | 28000 | 9600 | 11.00/22D | 11.00/24 | Con 22R | 6–4½x5¼ | 501 | 5.4 | 384 | 148–2400 | 7–2¾x14⅛ | Y | Fu 5A65‖ | 15 | Tim S200P | 2F | R | ** –7.08 | Tim 36021TW | Tw4IA | 722 | 1051 | a | FX | 72½ | 10⅛x3⅛x⅛ | ● T |
| 33 | 60M2 | | 143 | 203 | 28000 | 9370 | 11.00/22D | 11.00/24 | Con 22R | 6–4½x5¼ | 501 | 5.4 | 384 | 148–2400 | 7–2¾x14⅛ | Y | Fu 5A650 | 10 | Tim S300P | HyF | R | 6.53–8.53 | Tim 36021TW | Tw4IA | 722 | 1051 | a | TX | 60½ | 10⅛x3⅛x⅛ | T |
| 34 | 65M2 | | 141 | 201 | 30000 | 9995 | 11.00/22D | 11.00/24 | Con R6602 | 6–4⅞x5⅝ | 602 | 6.1 | 464 | 200–2600 | 7–3¼x14½ | Y | Fu 5A650 | 10 | Tim S300P | HyF | R | 6.53–8.53 | Tim 36000TW | Ws4IA | 722 | 1051 | a | TX | 60½ | 10⅛x3½x⅛ | T |
| 35 | 65MA | | 153 | 201 | 30000 | 10225 | 11.00/22D | 11.00/24 | Con R6602 | 6–4⅞x5⅝ | 602 | 6.1 | 464 | 200–2600 | 7–3¼x14½ | Y | Fu 5A65‖ | 15 | Tim S200P | HyF | R | ** –7.08 | Tim 36000TW | Ws4IA | 722 | 1051 | a | TX | 72½ | 10⅛x3⅛x⅛ | ● T |
| | Ford F-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | Cowl....8HC-84 | 890 | 114 | 114 | 4700 | 2400 | 6.00/16-4 | 6.50/16-6S | Own 7HC | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 21C | 3 | Own 8C | H½ | H | 3.73–4.27 | Own 8RC | O4IH | 178 | 259 | Co | M2 | 40.06 | 5.92x2½x15 | T |
| 37 | Cowl....8RC-84 | 910 | 114 | 114 | 4700 | 2400 | 6.00/16-4 | 6.50/16-6S | Own 8RC | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 21C | 3 | Own 8C | H½ | H | 3.73–4.27 | Own 8RC | O4IH | 178 | 259 | Co | M2 | 40.06 | 5.92x2½x15 | T |
| | F-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | Cowl....8HD-84 | 995 | 122 | 122 | 5700 | 2765 | 6.50/16-6 | 7.00/16-6S | Own 7HY | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 51Y | 4 | Own 8RD | S | H | ** –4.68 | Own 8RD | O4IH | 167 | 264 | Co | M2 | 48.06 | 6x2¼x.19 | T |
| 39 | Cowl....8RD-84 | 1015 | 122 | 122 | 5700 | 2765 | 6.50/16-6 | 7.00/16-6S | Own 8RY | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 51Y | 4 | Own 8RD | S | H | ** –4.68 | Own 8RD | O4IH | 167 | 264 | Co | M2 | 48.06 | 6x2¼x.19 | T |
| | F-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | Cowl....8HY-84 | 1059 | 122 | 122 | 6800 | 3015 | 7.00/17-68‡ | 7.50/17-8S | Own 7HY | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 51Y | 4 | Own 8RY | S | H | ** –4.68 | Own 8RY | O4IH | 188 | 308 | Co | M2 | 48.06 | 6x2¼x.19 | T |
| 41 | Cowl....8RY-84 | 1079 | 122 | 122 | 6800 | 3015 | 7.00/17-68‡ | 7.50/17-8S | Own 8RY | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 51Y | 4 | Own 8RY | S | H | ** –4.68 | Own 8RY | O4IH | 188 | 308 | Co | M2 | 48.06 | 6x2¼x.19 | T |
| | F-4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | Cowl...8HTL-84 | 1108 | 134 | 134 | 10000 | 3731 | 7.00/20-8S | 7.00/18-8 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTL | S | H | 5.14–5.83 | Own 7RTL | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21 | T |
| 43 | Cowl...8RTL-84 | 1128 | 134 | 134 | 10000 | 3731 | 7.00/20-8S | 7.00/18-8 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTL | S | H | 5.14–5.83 | Own 7RTL | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21 | T |
| | F-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | Cowl....8HT-84 | 1122 | 134 | 134 | 14000 | 3935 | 6.50/20-6 | 7.50/20-8 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21 | L |
| 45 | Cowl....8RT-84 | 1142 | 134 | 134 | 14000 | 3935 | 6.50/20-6 | 7.50/20-8 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21 | L |
| 46 | Cowl...8H8T-84 | 1152 | 158 | 158 | 14000 | 4095 | 6.50/20-6 | 7.50/20-8 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 84.06 | 7x2¾x.21* | LT |
| 47 | Cowl...8R8T-84 | 1172 | 158 | 158 | 14000 | 4095 | 6.50/20-6 | 7.50/20-8 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 84.06 | 7–2¼x.21* | LT |
| | F-5 C.O.E. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | Cab...8HOW-81 | 1467 | 110 | 110 | 14000 | 4615 | 6.50/20-6 | 7.50/20-8 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21* | LT |
| 49 | Cab...8ROW-81 | 1487 | 110 | 110 | 14000 | 4615 | 6.50/20-6 | 7.50/20-8 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21* | LT |
| 50 | Cab....8HW-81 | 1497 | 134 | 134 | 14000 | 4753 | 6.50/20-6 | 7.50/20-8 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| 51 | Cab....8RW-81 | 1517 | 134 | 134 | 14000 | 4753 | 6.50/20-6 | 7.50/20-8 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| 52 | Cab....8H8W-81 | 1527 | 158 | 158 | 14000 | 4835 | 6.50/20-6 | 7.50/20-8 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 108.1 | 7.08x2.8x¼* | LT |
| 53 | Cab...8R8W-81 | 1547 | 158 | 158 | 14000 | 4835 | 6.50/20-6 | 7.50/20-8 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | SF | H | 5.14–6.67 | Own 7RW | O4IH | 302 | 506 | Co | TX | 108.1 | 7.08x2.8x¼* | LT |
| | F-5 School Bus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | Bus Cl..8H8T-84 | 1240 | 158 | 158 | 12000 | 4143 | 6.50/20-6 | 7.00/20-8 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 128♦ | 7x2¾x.21* | LT |
| 55 | Bus Cl..8R8T-84 | 1260 | 158 | 158 | 12000 | 4143 | 6.50/20-6 | 7.00/20-8 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RT | O4IH | 302 | 506 | Co | TX | 128♦ | 7x2¾x.21* | LT |
| 56 | Bus Cl..8H4T-84 | 1455 | 194 | 194 | 15000 | 4450 | 7.50/20-8 | 8.25/20-10 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–6.67 | Own 7RTH | O4IH | 302 | 506 | Co | TX | 164♦ | 7.08x2.8x¼* | LT |
| 57 | Bus Cl..8R4T-84 | 1475 | 194 | 194 | 15000 | 4450 | 7.50/20-8 | 8.25/20-10 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RT | S | H | 5.14–5.67 | Own 7RTH | O4IH | 302 | 506 | Co | TX | 164♦ | 7.08x2.8x¼* | LT |
| | F-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 58 | Cowl..8HTH-84 | 1530 | 134 | 134 | 15500 | 4233 | 7.50/20-8 | 8.25/20-10 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RTH | O4IHV | 302 | 506 | Co | TX | 60.06 | 7.08x2.8x¼* | LT |
| 59 | Cowl..8RTH-84 | 1550 | 134 | 134 | 15500 | 4233 | 7.50/20-8 | 8.25/20-10 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RTH | O4IHV | 302 | 506 | Co | TX | 60.06 | 7.08x2.8x¼* | LT |
| 60 | Cowl.8H8TH-84 | 1560 | 158 | 158 | 15500 | 4327 | 7.50/20-8 | 8.25/20-10 | Own 7HT | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RTH | O4IHV | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| 61 | Cowl.8R8TH-84 | 1580 | 158 | 158 | 15500 | 4327 | 7.50/20-8 | 8.25/20-10 | Own 8RT | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RTH | O4IHV | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| | F-6 C.O.E. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 62 | Cab.8HOWH-81 | 1875 | 110 | 110 | 16000 | 4771 | 7.50/20-8 | 8.25/20-10 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21* | LT |
| 63 | Cab.8ROWH-81 | 1895 | 110 | 110 | 16000 | 4771 | 7.50/20-8 | 8.25/20-10 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 60.06 | 7x2¾x.21* | LT |
| 64 | Cab...8HWH-81 | 1905 | 134 | 134 | 16000 | 4931 | 7.50/20-8 | 8.25/20-10 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| 65 | Cab...8RWH-81 | 1925 | 134 | 134 | 16000 | 4931 | 7.50/20-8 | 8.25/20-10 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83x8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 84.06 | 7.08x2.8x¼* | LT |
| 66 | Cab..8H8WH-81 | 1935 | 158 | 158 | 16000 | 5025 | 7.50/20-8 | 8.25/20-10 | Own 7HW | 6–3.3x4.4 | 226 | 6.8 | 180 | 95–3300 | 4–2.87x4.8 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83–8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 108.1 | 7.08x2.8x¼* | LT |
| 67 | Cab..8R8WH-81 | 1955 | 158 | 158 | 16000 | 5025 | 7.50/20-8 | 8.25/20-10 | Own 8RW | 8–3⅛x3¾ | 239 | 6.8 | 180 | 100–3800 | 3–2.49x4.9 | N | Own 41T | 4 | Own 7RTM■ | SF | H | 5.83x8.11 | Own 7RW | O4IHV | 302 | 506 | Co | TX | 108.1 | 7.08x2.8x¼* | LT |

(Turn to Page 114, please)

†—Rear only; Front 9.00/20.
▲—Rear only; Front 7.50/20.
‡—For shorter wheelbases 8½x2¼x⅞.
‡‡—Cowl to Axle.
♦—For shorter wheelbases—10x3½x¼.
‖—Auxiliary trans. Spicer 6231B, three forward speeds.
§—Auxiliary trans. Spicer 703F, three forward speeds.
■—Two speed rear axle with vacuum shift.
●—Reinforcement 6.58x2.21x.125, Inside Siderail from Front to Rear Spring Brackets.

# *New* SEALED POWER MD-50 STEEL OIL RING



## *The ONLY RING with the FULL-FLOW SPRING*

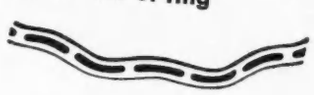
**Ends oil waste!**

**Increases power!**

Everywhere they're saying it's the greatest steel ring improvement in 10 years. Use it to insure efficient performance even in tapered and out-of-round bores! Gain these important FULL-FLOW SPRING benefits:

1. Improved oil economy for a longer period
2. More spring action for steel segments
3. All slots and oil holes free and open
4. No loss of tension in varying groove depths
5. Greater bearing area for longer life
6. Retains full efficiency for life of ring

**Twice as many slots for full flow of oil:**



**Gentle curves for greater bearing area:**

For better oil control install Sealed Power "X" Sets featuring the MD-50 Steel Oil Ring—the only ring with the FULL-FLOW SPRING! Sealed Power Corporation, Muskegon, Michigan. In Canada: Stratford, Ontario.

*Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts*

**Sealed Power**

**PISTON RINGS**

BEST IN NEW TRUCKS! BEST IN OLD TRUCKS!

(Continued from Page 112)

| Line Number | MAKE AND MODEL | Chassis List Price | WHEEL-BASE Minimum Standard | WHEEL-BASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES D-dual rear S-single rear: Standard Front and Rear | TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted) | ENGINE DETAILS: Make and Model | No. of Cylinders, Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings: Number, Diameter and Length | Governor Standard | TRANSMISSION: Make and Model | TRANSMISSION: Forward Sp'ds | REAR AXLE: Make and Model | REAR AXLE: Gear and Type | REAR AXLE: Drive & Torque | REAR AXLE: Gear Ratio Range in High | FRONT AXLE: Make and Model | BRAKES SERVICE: Make Location Type Operation | BRAKES SERVICE: Lining Area | BRAKES SERVICE: Drum Area | BRAKES SERVICE: Drum Material | BRAKES SERVICE: Hand Location Type | C-A Dimensions (Min. Std. W. B.) | FRAME: Side Rail Dimensions | FRAME: Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ford Cont'd | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | F-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Cowl...8EQ-84 | 2485 | 135 | 135 | 19000 | 5664 | 8.25/20-10 | 9.00/20-10 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQ | 5 | Own 7EQ | Hy | H | 6.8 | Own 7EQ | O4IHV | 350 | 583 | Co | TX | 61.06 | 9x3x.25 | T |
| 2 | Cowl...8E9Q-84 | 2515 | 159 | 159 | 19000 | 5784 | 8.25/10-20 | 9.00–20-10 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQ | 5 | Own 7EQ | Hy | H | 6.8 | Own 7EQ | O4IHV | 350 | 583 | Co | TX | 85.06 | 9x3x.25 | T |
| 3 | Cowl...8E5Q-84 | 2565 | 195 | 195 | 19000 | 5914 | 8.25-20-10 | 9.00/20-10 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQ | 5 | Own 7EQ | Hy | H | 6.8 | Own 7EQ | O4IHV | 350 | 583 | Co | TX | 121.1 | 9x3x.25 | T |
| | F-8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Cowl...8EQH-84 | 3165 | 135 | 135 | 21500 | 6393 | 9.00/20-10 | 10.0/20-12 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQH | 5 | Own 7EQH♦ | SF | H | 6.5 –8.87 | Own 7EQ | O4IHV | 485 | 729 | C | TX | 61.06 | 9x3x.25 | T |
| 5 | Cowl..8E9QH-84 | 3195 | 159 | 159 | 21500 | 6543 | 9.00/20-10 | 10.0/20-12 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQH | 5 | Own 7EQH♦ | SF | H | 6.5 –8.87 | Own 7EQ | O4IHV | 485 | 729 | C | TX | 85.06 | 9x3x.25 | T |
| 6 | Cowl..8E5QH-84 | 3245 | 195 | 195 | 21500 | 6693 | 9.00/20-10 | 10.0/20-12 | Own 8EQ | 8–3½x4⅜ | 337 | 6.4 | 255 | 145–3600 | 3–2.87x5.0 | Y | Own 7EQH | 5 | Own 7EQH♦ | SF | H | 6.5 –8.87 | Own 7EQ | O4IHV | 485 | 729 | C | TX | 121.1 | 9x3x.25 | T |
| 7 | Hudson (½T. Pkp) | 128 | 128 | 4810 | | 6.50/16-6 | 6.50/16-6 | Own 178 | 6–3x5 | 212 | 6.5 | 168 | 102–4000 | 3– ▲▲ | N | Own | 3 | Own | 8½ | H | ▲▲ –4.55 | Own | B4IH | 141 | 242 | C | 2I | 42½ | 7⅛x1⅝x⅛ | B |
| 8 | Intern'l (2)...KB-1 | 815 | 113 | 125 | 4400 | 2250 | 6.00/16-4 | 7.00/16 | Own GRD214 | 6–3⅞x4½ | 213 | 6.3 | 160 | 82–3400 | 4–2⅛x6 | N | Own HDS-B | 3 | Own R1050 | 8½ | H | 3.72–5.11 | Own F50 | L41H | 164 | 316 | c | FX | 38 | 6x2¼x¼ | T |
| 9 | KB-1M | 770 | 102 | 113 | 4600 | 2150 | 6.00/16-4 | 6.50/16-6 | Own GRD214 | 6–3⅞x4½ | 213 | 6.3 | 160 | 82–3400 | 4–2⅛x6 | N | O SA-HDS-B | 3 | Own R1050 | 8½ | H | 3.72–5.11 | Own F150 | L41H | 164 | 316 | c | FX | .... | 6½x2¼x⅛ | T |
| 10 | KB-2 | 855 | 125 | 125 | 5200 | 2285 | 6.00/16-4 | 7.00/16-6 | Own GRD214 | 6–3⅞x4½ | 213 | 6.3 | 160 | 82–3400 | 4–2⅛x6 | N | Own HDS-B | 3 | Own R1050 | 8½ | H | 3.72–5.11 | Own F50 | L41H | 164 | 316 | c | FX | 50 | 6x2¼x⅛ | T |
| 11 | KB-3 | 1005 | 130 | .... | 6650 | 3000 | 7.00/16-6 | 7.50/16-6 | Own GRD214 | 6–3⅞x4½ | 213 | 6.3 | 160 | 82–3400 | 4–2⅛x6 | N | Own HDS-B | 3 | Own R1150 | 8F | H | 4.22–5.28 | Own F150 | L41H | 195 | 367 | c | FX | 55 | 6½x2¼x⅛ | T |
| 12 | KB-3M | 930 | 102 | 113 | 7000 | 2585 | 7.00/16-6 | 7.50/16-8 | Own GRD214 | 6–3⅞x4½ | 213 | 6.3 | 160 | 82–3400 | 4–2⅛x6 | N | Own H41B | 4 | Own R1150 | 8F | H | 4.22–5.28 | Own F150 | L41H | 221 | 367 | c | FX | .... | 6½x2¼x⅛ | T |
| 13 | (a)....KB-5 | 1145 | 135 | 177 | 13500 | 3705 | 6.50/20D | 8.25/20 | O-GRD 233 | 6–3⅞x4½ | 233 | 6.3 | 181 | 93–3400 | 4–2⅝x6 | N | Own H41B | 4 | Own R1360 | 8F | H | 5.28–7.16 | Own F350 | LH4IH | 294 | 509 | c | FX | 60 | 8x3x⅛ | T |
| 14 | (a)....KB-6 | 1625 | 134 | 176 | 14500 | 4625 | 7.00/20D | 8.25/20 | Own BLD250 | 6–3⅞x4½ | 251 | 6.3 | 200 | 100–3200 | 4–2⅝x5 | N | Own WT97A | 5 | Own R1560 | 8F | H | 5.62–7.16 | Own 16F470 | LH4IHV | 305 | 539 | c | FX | 60 | 8¼x3x⅛ | T |
| 15 | (a)....KB-7 | 2100 | 134 | 176 | 16500 | 5055 | 7.50/20D | 9.00/20 | O-BLD 269 | 6–3⅞x4½ | 269 | 6.3 | 222 | 100–3000 | 4–2.75x5 | N | Own F51 | 5 | Own R1560 | 8F | H | 6.50–7.16 | Own F470 | LH4IHV | 368 | 633 | c | FX | 60 | 8¼x3x⅛ | T |
| 16 | (a)....KB-8 | 3050 | 137 | 197 | 20000 | 6580 | 9.00/20D | 10.00/24 | O-RED 361 | 6–4½x4½ | 361 | 6.3 | 282 | 126–3000 | 7–3¼x10 | N | Own F51 | 5 | Own R1572 | 8F | H | 6.43–8.51 | Own F553 | LH4IHV | 407 | 709 | c | FX | 60 | 8 x3½x⅛ | T |
| 17 | (a)....KB-10 | 3900 | 149 | 197 | 22500 | 7405 | 10.00/20D | 11.00/24 | Own RED401 | 6–4½x5 | 401 | 6.3 | 318 | 140–2800 | 7–3¼x10 | N | Own F52 | 5 | Own R1676 | 8F | H | 6.43–8.05 | Own F653 | LH4IHV | 484 | 829 | c | FX | 72 | 9¼x3½x⅛ | T |
| 18 | (a)....KB-11 | 5300 | 149 | 197 | 27000 | 8430 | 10.00/20D | 12.00/24 | O-RED 450 | 6–4½x5 | 450 | 6.3 | 361 | 148–2600 | 7–3¼x10 | Y | Own F54 | 5 | Tim R100 | 2SF | H | 6.42–8 05 | Own F750 | WW4IA | 746 | 1030 | G | FX | 72 | 10x3½x⅛ | T |
| 19 | KB-12 | 6550 | 155 | 215 | 28500 | 9175 | 11.00/20 | 12.00/20 | O-Con. R6586 | 6–4½x5⅝ | 586 | 6.0 | 475 | 200–2600 | 7–3¼x13 | Y | Own F55 | 5 | Tim R100 | 2F | H | ▲▲ –6.42 | Own F750 | BW4IA | 746 | .... | GS | FX | 66 | 10x3½x⅛ | C |
| 20 | (a)....KBR-14 | 7150 | 161 | 215 | 32000 | 10100 | 11.00/20 | 12.00/24 | O-Con. R6586 | 6–4½x5⅝ | 586 | 6.0 | 475 | 200–2600 | 7–3¼x13 | Y | Own F55B | 5 | Tim U200P | 2F | H | ▲▲–7.08 | Own F750 | BW4IA | 746 | .... | GS | FX | 72 | 10x3½x⅛ | L |
| 21 | W-3042-L | 9500 | 179 | 227 | 30000 | 12580 | 10.00/20 | 11.00/22 | Cum HB600 | 6–5⅜x5½ | 672 | 17 | 554 | 254–2600 | 7–3¾x15¾ | Y | Spl 7741 | 4 | Tim R-100 | 2F | H | ▲▲ –6.42 | Own S6303 | BW4IA | 690 | .... | G | FX | 84 | 10x3½x⅛ | C |
| 22 | W-4042-OH | | 170 | 230 | 40000 | 13115 | 10.00/20 | 14.00/24 | Cum HB600 | 6–4¼x6 | 672 | 17 | 492 | 150–1800 | 7–4½x.. | Y | Spl 7741 | 4 | Tim 79750PA | 2F | H | 7.69–11.36 | Own 82F | BW4IA | 656 | .... | G | FX | 72 | 10x3½x⅛ | C |
| 23 | Kenworth(D)..521 | | 161 | 215 | 35000 | 12200 | 10.00/20 | 11.00/22 | Cum HB6 | 6–4¼x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | BL 7841 | 4 | Tim U200P | DR | H | 6.42–7.84 | Tim 36000TW | Ws4IA | 752 | 1050 | a | TD | 72 | 9½x3¼x⅛ | C |
| 24 | 585 | | 150 | 215 | 30000 | 10130 | 10.00/20 | 11.00/22 | Bu LO525 | 6–4½x5½ | 525 | 5.8 | 385 | 150–2200 | 7–3x11½ | Y | Fu 5A620 | 5 | Tim 5h415P | ..... | .. | 6.14 | Tim 36000TW | Ws4IA | 752 | .... | a | .... | 70 | 9½x3¼x⅛ | .... |
| 25 | Linn.....L-2 | | 120 | .... | 9000 | 6000 | 7.50/20S | 8.25/20S | Her QXC3 | 6–3⅝x4½ | 221 | .... | 159 | 77–3200 | 7–1¾x10 | N | WGT9 | 4 | Own 600 | N | N | None | Tim F30B28H | L4IH | 306 | 478 | a | T | ..... | None | .... |
| 26 | L-4 | | 156 | .... | 9200 | 6200 | 7.50/20S | 8.25/20 | Her QXC3 | 6–3⅝x4½ | 221 | .... | 159 | 77–3200 | 7–1¾x10 | N | WGT9 | 4 | Own 600 | N | N | None | Tim F30B28H | L4IH | 306 | 478 | a | X | ..... | None | .... |
| 27 | L-6 | | 169 | .... | 12700 | 7700 | 7.50/20D | 8.25/20 | Her JXE3 | 6–3½x4¼ | 245 | 6.5 | 184 | 91–3200 | 7–2½x10 | N | WGT9 | 4 | Own 600T | N | N | None | Tim F30B28H | L6IH | 486 | 744 | a | X | ..... | None | .... |
| 28 | L-8 | | 205 | .... | 12900 | 7900 | 7.50/20D | 8.25/20 | Her JXE3 | 6–3½x4¼ | 245 | 6.5 | 184 | 91–3200 | 7–2½x10 | N | WGT9 | 4 | Own 600T | N | N | None | Tim F30B28H | L6IH | 486 | 744 | a | X | ..... | None | .... |
| 29 | Mar. Her...DVL-4 | | 90 | 118 | ‡6750 | ..... | 7.50/16S | 8.25/18S | Willys MB | 4–3⅛x4⅝ | 134 | 6.4 | 105 | 60–4000 | 3–2.33x5.48 | Y | Own | 3 | (Front Drive) | ..... | .. | 7.10 | Own | 4IH | 202 | 327 | M2 | ..... | ..... | None | .... |
| 30 | Reo.....C-19A | | 125 | 125 | 14000 | 4810▲ | 7.50/20 | 8.25/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | WG T97 | 4 | T53547–E300 | SFd | H | 5.66–6.16* | Tim 30000 | T41VH▼ | 310 | 482 | var | TX | 60⅜ | 8⅛x2⅛x⅜ | T |
| 31 | C-19T | | 125 | 125 | 14000 | 5280▲ | 8.25/20 | 8.25/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | WG T97 | 4 | Tim E300 | HFd | H | 6.13x8.10 | Tim 30000 | T41VH▼ | 310 | 482 | var | TX | 60⅜ | 8⅛x2⅛x⅜ | T |
| 32 | C-19B | | 150 | 150 | 14000 | 4960▲ | 7.50/20 | 8.25/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | WG T97 | 4 | T53547–E300 | SFd | H | 5.66–6.16* | Tim 30000 | T41VH▼ | 310 | 482 | var | TX | 85⅜ | 8⅛x2⅛x⅜ | T |
| 33 | C-19C | | 165 | 165 | 14000 | 5030▲ | 7.50/20 | 8.25/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | WG T97 | 4 | T53547–E300 | SFd | H | 5.66–6.16* | Tim 30000 | T41VH▼ | 310 | 482 | var | TX | 100⅜ | 8⅛x2⅛x⅜ | T |
| 34 | C-21T | | 130 | 130 | 18000 | 6380▲ | 9.00/20 | 9.00/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H300 | HFd | H | 6.13x8.15 | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 65⅝ | 9x3x⅛ | T |
| 35 | C-21A | | 130 | 130 | 18000 | 6090▲ | 9.00/20 | 9.00/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2⅝x10.7 | Y | Cla 205V | 5 | Tim H300 | HFd | H | 6.13x8.15 | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 65⅝ | 9x3x⅛ | T |
| 36 | C-21B | | 150 | 150 | 18000 | 6080▲ | 8.25/20 | 9.00/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H100–300 | HFd | H | 6.16–6.8* | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 85⅝ | 9x3x⅛ | T |
| 37 | C-21C | | 165 | 165 | 18000 | 6220▲ | 9.00/20 | 9.00/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H100–300 | HFd | H | 6.16–6.8* | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 100⅜ | 9x3x⅛ | TF |
| 38 | C-22T | | 130 | 130 | 20500 | 6630▲ | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H300 | HFd | H | 6.13x8.15 | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 65⅝ | 9⅛x3⅓x⅛ | T |
| 39 | C-22A | | 130 | 130 | 20500 | 6220▲ | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2⅝x10.7 | Y | Cla 205V | 5 | Tim H300 | HFd | H | 6.13x8.15 | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 65⅝ | 9⅛x3⅓x⅛ | T |
| 40 | C-22B | | 150 | 150 | 20500 | 6220▲ | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H Series | HFd | H | 6.16–7.3* | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 85⅝ | 9⅛x3⅓x⅛ | T |
| 41 | C-22C | | 165 | 165 | 20500 | 6410▲ | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2⅝x10.7 | Y | Cla 205V–VO | 5 | Tim H100–300 | HFd | H | 6.16–6.8* | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 100⅜ | 9⅛x3⅓x⅛ | TF |
| 42 | C-22L | | 185 | 185 | 20500 | 6490▲ | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2⅝x10.7 | Y | Cla 205V | 5 | Tim H100–300 | HFd | H | 6.16* | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | 120⅜ | 9⅛x3⅓x⅛ | TF |
| 43 | C-23T | | 130 | 130 | 23000 | 8100▲ | 10.00/20 | 10.00/20 | Con T-6371 | 6–4⅛x4⅝ | 371 | 6.3 | 292 | 133–2800 | 7–2½x13.5 | Y | Cla 270V–VO | 5 | Tim L-Series | HF | H | 6.83* | Tim 32500 | Ws4IA | 514 | 784 | VarTX | TX | 65⅝ | 9⅛x3⅓x⅛ | T |
| 44 | C-23B | | 150 | 150 | 23000 | 7380▲ | 10.00/20 | 10.00/20 | Con T-6371 | 6–4⅛x4⅝ | 371 | 6.3 | 292 | 133–2800 | 7–2½x13.5 | Y | Cla 270VO | 5 | Tim L-200 | HF2 | H | 8.22 | Tim 32500 | T41VH▼ | 570 | 644 | VarTX | TX | 85⅝ | 9⅛x3⅓x⅛ | T |
| 45 | C-23L | | 185 | 185 | 23000 | 7500▲ | 10.00/20 | 10.00/20 | Con T-6371 | 6–4⅛x4⅝ | 371 | 6.3 | 292 | 133–2800 | 7–2½x13.5 | Y | Cla 270VO | 5 | Tim L-100-300 | HF | H | 6.83* | Tim 32500 | Ws4IA | 514 | 784 | VarTX | TX | 120⅜ | 9⅛x3⅓x⅛ | Tf |
| 46 | C-25T | | 130 | 130 | 27400 | 8760▲ | 10.00/20 | 10.00/22 | Con T-6427 | 6–4¼x4⅞ | 427 | 6.2 | 336 | 153–2800 | 7–2½x13.5 | Y | Cla 270V–VO | 5 | Tim Q300 | HFd | H | 6.53–8.53 | Tim 35000 | Ws4IA | 586 | 848 | VarTX | TX | 65⅝ | 9⅛x3⅓x⅛ | T |
| 47 | C-25B | | 150 | 150 | 27400 | 8570▲ | 10.00/20 | 10.00/20 | Con T-6427 | 6–4¼x4⅞ | 427 | 6.2 | 336 | 153–2800 | 7–2½x13.5 | Y | Cla 270VO | 5 | Tim S200P | HF2 | H | 7.84 | Tim 35000 | Ws4IA | 660 | 952 | VarTX | TX | 85⅝ | 9⅛x3⅓x⅛ | T |
| 48 | C-25BT | | 150 | 150 | 27400 | 9360▲ | 10.00/20 | 10.00/20 | Con T-6427 | 6–4¼x4⅞ | 427 | 6.2 | 336 | 153–2800 | 7–2½x13.5 | Y | Cla 270VO&▼ | 15 | Tim S200P | HF2 | H | 7.84 | Tim 35000 | Ws4IA | 660 | 952 | VarTD | TD | 85⅝ | 9⅛x3⅓x⅛ | T |
| 49 | C-25BL | | 150 | 150 | 27400 | 9310▲ | 10.00/20 | 10.00/20 | Con T-6427 | 6–4¼x4⅞ | 427 | 6.2 | 336 | 153–2800 | 7–2½x13.5 | Y | Cla 270V&■ | 15 | Tim S200P | HF2 | H | 7.84 | Tim 35000 | Ws4IA | 660 | 952 | VarTD | TD | 85⅝ | 9⅛x3⅓x⅛ | T |
| 50 | C-25L | | 185 | 185 | 27400 | 8700▲ | 10.00/20 | 10.00/20 | Con T-6427 | 6–4¼x4⅞ | 427 | 6.2 | 336 | 153–2800 | 7–2½x13.5 | Y | Cla 270V | 5 | Tim S200P | HF2 | H | 7.84 | Tim 35000 | Ws4IA | 660 | 952 | VarTX | TX | 120⅜ | 9⅛x3⅓x⅛ | Tf |
| 50 | 30A | | 145▲ | 145▲ | 32000 | 12000▲ | 11.00/20 | 11.00/24 | Con R6513 | 6–4½x5⅝ | 513 | 5.9 | 400 | 170–2600 | 7–3¼x14.5 | Y | Spl 6252–53♦ | 5 | TS300–U200 | HF2 | H | 7.84* | Tim 36000 | Ws4IA | 722 | 1052 | var | TI | 67 | 10½x3⅛x⅜ | T |
| 51 | 30B | | 165▲ | 165▲ | 32000 | 12750▲ | 11.00/20 | 11.00/24 | Con R6513 | 6–4½x5⅝ | 513 | 5.9 | 400 | 170–2600 | 7–3¼x14.5 | Y | Spl 6252–53♦ | 5 | TS300–U200 | HF2 | H | –7.84* | Tim 36000 | Ws4IA | 722 | 1052 | var | TI | 87 | 10½x3⅛x⅜ | T |
| 52 | 31A | | 145▲ | 145▲ | 32000 | 12000▲ | 11.00/20 | 11.00/24 | Con R6602 | 6–4⅞x5⅝ | 602 | 5.9 | 464 | 200–2600 | 7–3¼x14.5 | Y | Spl 6252–53♦ | 5 | TS300–U200 | HF2 | H | –7.84* | Tim 36000 | Ws4IA | 722 | 1052 | var | TI | 67 | 10½x3⅛x⅜ | T |
| 53 | 31B | | 165▲ | 165▲ | 32000 | 12750▲ | 11.00/20 | 11.00/24 | Con R6602 | 6–4⅞x5⅝ | 602 | 5.9 | 464 | 200–2600 | 7–3¼x14.5 | Y | Spl 6252–53♦ | 5 | TS300–U200 | HF2 | H | –7.84* | Tim 36000 | Ws4IA | 722 | 1052 | var | TI | 87 | 10½x3¼x⅜ | T |
| 54 | School Buses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | C119-31 | | 152 | 152 | ..... | ..... | 7.00/20 | 7.00/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | Cla 185F | 4 | Tim 53547 | SF | H | 6.16 | Tim 30000 | T41VH▼ | 310 | 482 | var | TX | ..... | 9x3x¼ | T |
| 56 | C119L-43 | | 188 | 188 | ..... | ..... | 7.50/20 | 7.50/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | Cla 185F | 4 | Tim 53547 | SF | H | 6.67 | Tim 31013 | T41VH▼ | 310 | 482 | var | TX | ..... | 9x3x¼ | T |
| 57 | C119LS-49 | | 206 | 206 | ..... | ..... | 7.50/20 | 7.50/20 | Own GC 245 | 6–3½x4¼ | 245 | 6.2 | 192 | 89–3100 | 7–2½x10.7 | Y | WG T97 | 4 | Tim 53547 | SF | H | 6.67 | Tim 31013 | T41VH▼ | 310 | 482 | var | TX | ..... | 9⅛x3⅓x⅛ | T |
| 58 | C121-49 | | 206 | 206 | ..... | ..... | 8.25/20 | 8.25/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2½x10.7 | Y | Cla 231F | 4 | Tim E100 | HyF | H | 6.80 | Tim 31104 | T41VH▼ | 314 | 532 | var | TX | ..... | 9⅛x3⅓x⅛ | T |
| 59 | C121S–55 | | 224 | 206 | ..... | ..... | 8.25/20 | 8.25/20 | Own GC 288 | 6–3½x5 | 288 | 6.2 | 225 | 96–3000 | 7–2½x10.7 | Y | WG T97 | 4 | Tim E100 | HyF | H | 6.80 | Tim 31104 | T41VH▼ | 314 | 532 | var | TX | ..... | 9⅛x3⅓x⅛ | T |
| 60 | C122-55 | | 224 | 206 | ..... | ..... | 9.00/20 | 9.00/20 | Own GC 310 | 6–3⅝x5 | 310 | 6.2 | 243 | 101–3000 | 7–2½x10.7 | Y | Cla 231F | 4 | Tim H100 | HyF | H | 7.20 | Tim 31107 | T41VH▼ | 344 | 584 | var | TX | ..... | 9⅛x3⅓x⅛ | T |
| 61 | Sterling....HD97 | | 148 | 175 | 24000 | 9150 | 9.00/20 | 11.00/20 | Wau 6MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 130–3000 | 7–2½x12½ | Y | Fu 5A43 | 5 | Tim Q100DPH | FHy | R | 5.29–7.80 | Tim 35011H | T4IHV | 466 | 822 | A | TX | 67 | 9x7x¼ | A |
| 62 | HD105 | | 148 | 175 | 24000 | 9550 | 10.00/20 | 11.00/22 | Wau 6MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 130–3000 | 7–2½x12½ | Y | Fu 5A43 | 5 | Tim R100DPH | FHy | R | 5.29–7.40 | Tim 35011H | T4IHV | 524 | 926 | A | TX | 67 | 9x3¼x¼ | A |
| 63 | HD115 | | 148 | 175 | 32000 | 10650 | 10.00/20 | 11.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13¾ | Y | Fu 5A62 | 5 | Tim S200P | 2F | R | 7.77–8 .53 | Tim 36000TW | Ws4IA | 722 | 1054 | A | TX | 67 | 9x3¼x¼ | A |
| 64 | HD145 | | 148 | 175 | 36000 | 11250 | 11.00/20 | 12.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13¾ | Y | Fu 5A62 | 5 | Tim 79721W | 2F | R | 7.69–11.36 | Tim 36000TW | Ws4IA | 614 | 922 | A | TX | 67 | 9¼x3⅝x⅜ | A |
| 65 | (D)....HD115H | | 158 | 185 | 32000 | 11950 | 10.00/20 | 11.00/24 | Cum HB600 | 6–4¼x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86 | 4 | Tim S200P | 2F | R | 7.77–8 .53 | Tim 36000TW | Ws4IA | 722 | 1054 | A | TX | 68 | 9x3¼x¼ | A |
| 66 | (D)....HD145H | | 158 | 185 | 36000 | 12550 | 11.00/20 | 12.00/24 | Cum HB600 | 6–4¼x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86 | 4 | Tim 79721W | 2F | R | 7.69–11.36 | Tim 36000TW | Ws4IA | 614 | 922 | A | TX | 68 | 9¼x3⅝x⅜ | A |
| 67 | HC97 | | 148 | 175 | 24000 | 9200 | 9.00/20 | 11.00/20 | Wau 6MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 130–3000 | 7–2½x12½ | Y | Fu 5A43 | 5 | Own 97H | CS | R | 6.70–10.82 | Tim 35011H | T4IHV | 540 | 842 | A | TX | 67 | 9x7x¼ | A |
| 68 | HC105 | | 148 | 175 | 28000 | 9700 | 10.00/20 | 11.00/22 | Wau 6MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 130–3000 | 7–2½x12½ | Y | Fu 5A43♦ | 15 | Own 137H | CS | R | 6.70–10.82 | Tim 35011H | TL4IHV | 540 | 842 | A | TX | 67 | 9x3¼x¼ | A |
| 69 | HC115 | | 148 | 175 | 32000 | 10350 | 10.00/20 | 11.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13¾ | Y | Fu 5A62♦ | 15 | Own 137W | CS | R | 6.70–10.82 | Tim 36000TW | Ws4IA | 648 | 974 | A | TX | 67 | 9x3¼x¼ | A |
| 70 | HC144 | | 148 | 175 | 36000 | 11250 | 10.00/22 | 12.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13¾ | Y | Fu 5A62♦ | 15 | Own 148W | CS | R | 6.70–10.82 | Tim 36000TW | Ws4IA | 708 | 1042 | A | TX | 67 | 9¼x3⅝x⅜ | A |
| 71 | HC147 | | 148 | 175 | 36000 | 11500 | 10.00/22 | 12.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13¾ | Y | Fu 5A62♦ | 15 | Own 147W | CS | R | 6.70–10.82 | Tim 36000TW | Ws4IA | 708 | 1042 | A | TX | 67 | 9¼x3⅝x⅜ | A |

(Turn to page 116, please)

▲—Includes Cab.
‡—Auxiliary transmission, Own OJ.
♦—2-Speed Axle Available.

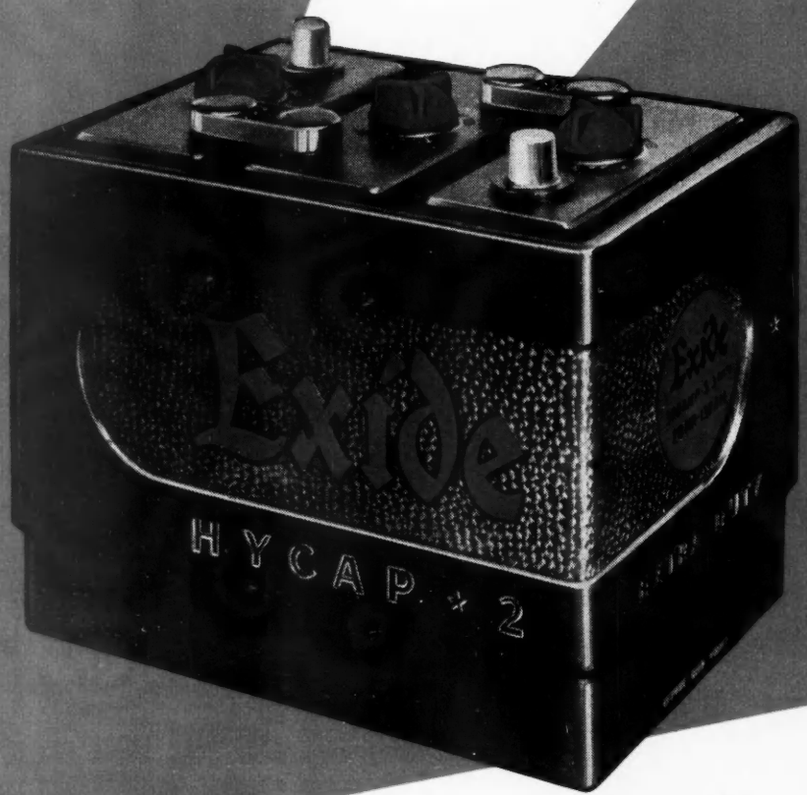
■—6231 Spicer Auxiliary Transmission.
▼—Lockheed Type Front and Timken Dual Primary Rear Brakes.
▼—6231A Spicer Auxiliary Transmission.
♣—8031 F-G Spicer Transmission available.
▲—Special W.B.'s available on request.

▲▲—Diameter front 2.343, Center 2.375, Rear 2.406. Total length 5.750.
‡—8200 for 8.25/18 tires.
♦—Two speed rear axle with vacuum shift.

# Exide BATTERIES

## STARTING POWER

plus low cost per mile of operation




**MANY OUTSTANDING FEATURES**

- Heavy, oversize plates
- Greater capacity
- Self-cleaning, non-spitting vent plugs
- Double insulation between plates
- "Bull's Eye" electrolyte leveling device
- Heavier inter-cell connectors
- Hard rubber container
- Positive cover seals

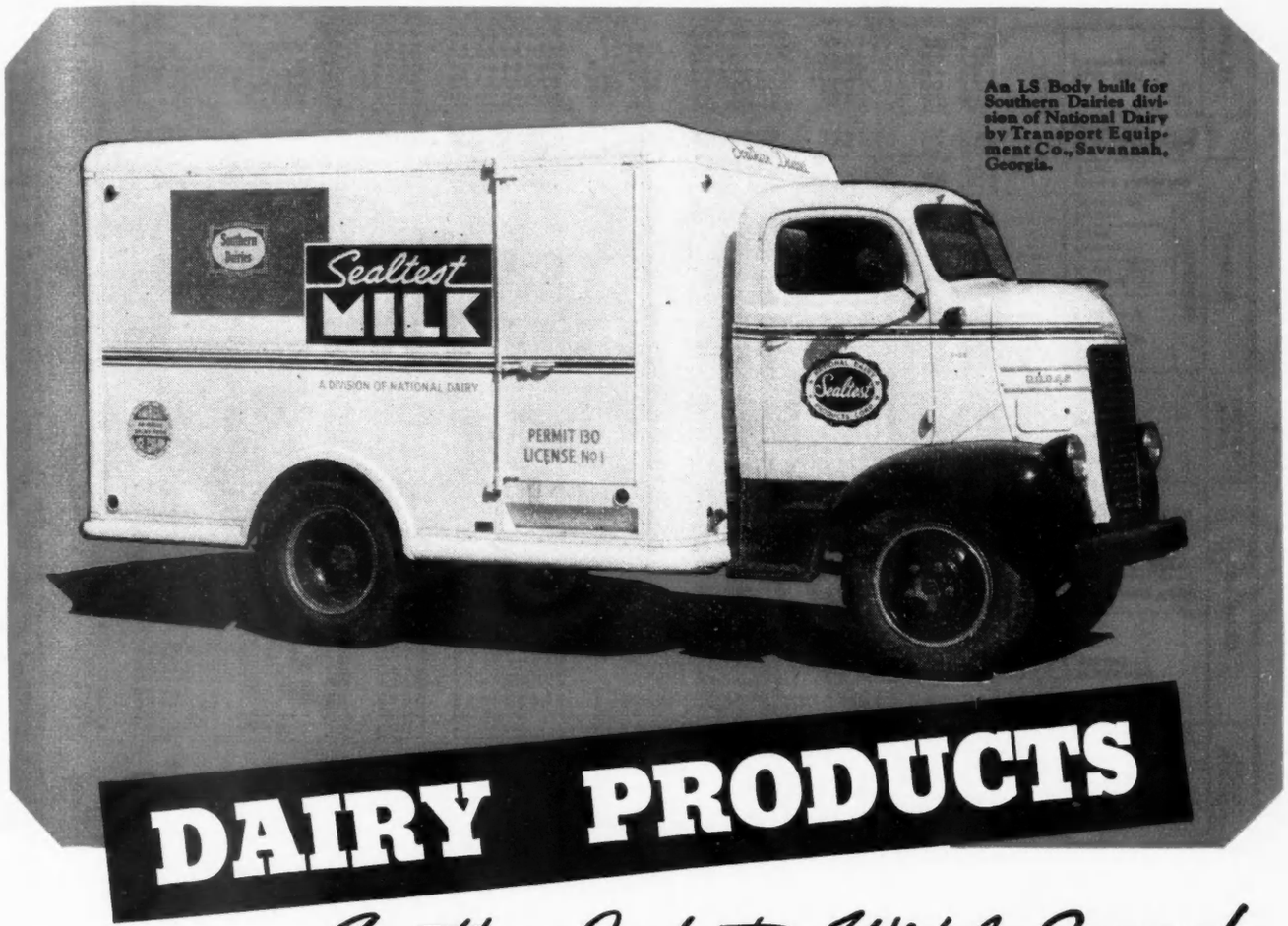
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

(Continued from Page 114)

| Line Number | MAKE AND MODEL | Chassis List Price | WHEELBASE Minimum Standard | WHEELBASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES D-dual rear S-single rear: Standard Front and Rear | TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted) | ENGINE DETAILS: Make and Model | No. of Cylinders, Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings: Number, Diameter and Length | Governor Standard | TRANSMISSION: Make and Model | Forward Sp'ds | REAR AXLE: Make and Model | Gear and Type | Drive & Torque | Gear Ratio Range in High | FRONT AXLE: Make and Model | BRAKES SERVICE: Make | Location | Type Operat'n | Lining Area | Drum Area | Drum Material | Hand Location Type | C-A Dimension (Min. Std. W. B.) | FRAME: Side Rail Dimensions | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sterling, Cont'd. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | HC175 | | 167 | 185 | 45000 | 14600 | 12.00/24† | 14.00/24‡ | Wau 145GK | 6–5¼x6 | 779 | 6.2 | 585 | 186–2100 | 7–3½x17¾ | Y | Fu 4B86● | 12 | Own 175W | CS | R | 7.31–12.42 | Tim 27454W | Ws4IA | | | 786 | 1152 | A | TX | 77 | 9¼x3½x⅝ | A |
| 2 | HC250 | | 178 | 190 | 60000 | 18400 | 14.00/24‡ | 14.00/24‡ | Wau 145GK | 6–5¼x6 | 779 | 6.2 | 585 | 186–2100 | 7–3½x17¾ | Y | Fu 4B86● | 12 | Own 251W | CS | R | 7.31–12.42 | Tim 27454W | Ws4IA | | | 786 | 1157 | A | JX | 95 | 12x3½x⅝ | AL |
| 3 | (D) HC115H | | 167 | 185 | 32000 | 12250 | 10.00/20 | 11.00/24 | Cum HB600 | 6–4⅛x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86● | 12 | Own 137W | CS | R | 6.70–10.82 | Tim 36000TW | Ws4IA | | | 648 | 974 | A | TX | 77 | 9x3¼x¼ | A |
| 4 | (D) HC175H | | 167 | 185 | 45000 | 14930 | 12.00/24† | 14.00/24‡ | Cum HBD600 | 6–4⅛x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86● | 12 | Own 175W | CS | R | 7.31–12.42 | Tim 27454W | Ws4IA | | | 786 | 1152 | A | TX | 77 | 9¼x3⅝x⅝ | A |
| 5 | (D) HC250H | | 178 | 190 | 60000 | 18700 | 14.00/24‡ | 14.00/24‡ | Cum HBD600 | 6–4⅛x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86● | 12 | Own 251W | CS | R | 7.31–12.42 | Tim 27454W | Ws4IA | | | 786 | 1152 | A | JX | 95 | 12x3½x⅝ | AL |
| 6 | Studebaker M5 | | 113 | 113 | 4500 | 2120 | 6.50/16 | 6.50/16S | Own 1M | 6–3x4 | 170 | 6.5 | 134 | 80–4000 | 4–2⅛x5⅛ | N | Own 664949 | 3 | Own 663597 | Hy | H | ** –4.82 | Own 664307 | L4IH | | | 157 | 276 | Co | 2I | 45½ | 7 x2 x⅛ | T |
| 7 | M15A-20 | | 120 | 120 | 7800 | 2960 | 7.00/17S | 7.50/17 | Own 2M | 6–3x4 | 170 | 6.5 | 134 | 80–4000 | 4–2⅛x5⅛ | N | Own 673674 | 4 | Own 677768 | SF | H | 5.83–6.60 | Own 646781 | LH4IH | | | 216 | 342 | a | TX | 52½ | 7½x2½x⅛ | T |
| 8 | M15A-28 | | 128 | 128 | 10000 | 3060 | 7.50/17S | 7.00/20 | Own 2M | 6–3x4 | 170 | 6.5 | 134 | 80–4000 | 4–2⅛x5⅛ | N | Own 673674 | 4 | Own 665174 | SF | H | 6.60–5.83 | Own 676461 | LH4IH | | | 216 | 342 | a | TX | 60½ | 8⅛x2½x⅝ | T |
| 9 | M16 | | 128 | 195 | 13500 | 3630 | 7.00/20D | 8.25/20 | Own 3M | 6–3⅛x4½ | 226 | 6.5 | 176 | 94–3600 | 4–2½x5½ | N | Own 674989 | 4 | Own 665171 | SF | H | 5.66–6.66 | Own 664452 | LH4IH | | | 280 | 442 | Co | TX | 60½ | 8½x2½x⅝ | T |
| 10 | M16(2–8p) | | 128 | 195 | 15000 | 3955 | 7.00/20D | 8.25/20 | Own 3M | 6–3⅛x4½ | 226 | 6.5 | 176 | 94–3600 | 4–2½x5½ | Y | Own 674989 | 4 | Own 676055 | HyF | H | 6.13–8.10 | Own 664452 | LH4IH | | | 280 | 442 | Co | TX | 60½ | 8½x2½x⅝ | T |
| 11 | Truckstell(C) F18-5 | | 140 | 194 | 18500 | ▲5365 | 7.50/20● | 9.00/20 | Ford | 8–3⅛x3⅛ | 239 | 6.4 | 180 | 100–3800 | 3–2⅛x4.71 | N | Ford & BL | 12 | Cla R1250 | SF | H | 5.67–6.83 | Ford | L4IHV | | | 390 | 600 | a | TX | 65⅝ | 7½x3x.47 | CTf |
| 12 | (C) F19-5-0 | | 108 | 166 | 19500 | ▲5615 | 7.50/20● | 9.00/20 | Ford | 8–3⅛x3⅛ | 239 | 6.7 | 180 | 100–3800 | 3–2⅛x4.71 | N | Ford & BL | 12 | Cla R1250 | SF | H | 5.67–6.83 | Ford | L4IHV | | | 390 | 600 | a | TX | 65⅝ | 7½x3x.47 | CTf |
| 13 | (C) C18-5 | | 147 | 195 | 18500 | ▲5530 | 7.50/20● | 9.00/20 | Chevrolet | 6–3⅛x3½ | 235 | 6.6 | 192 | 93–3100 | 4–2⅝x5⅛ | N | Chev & BL | 12 | Cla R1250 | SF | H | 5.67–6.83 | Chevrolet | L4IHV | | | 399 | 600 | a | TX | 70 | 9⅝x3x.50 | CTf |
| 14 | (C) C19-5-0 | | 120 | 180 | 19500 | ▲5700 | 7.50/20● | 9.00/20 | Chevrolet | 6–3⅛x3½ | 235 | 6.6 | 192 | 93–3100 | 4–2⅝x5⅛ | N | Chev & BL | 12 | Cla R1250 | SF | H | 5.67–6.83 | Chevrolet | L4IHV | | | 399 | 600 | a | TX | 70 | 9⅝x3x.50 | CTf |
| 15 | Ward La Fr. D-1 | 5340 | 149 | 220 | 25000 | 9500 | 10.00/20 | 11.00/20 | Con T6427 | 6–4⅛x4¼ | 427 | 5.1 | 340 | 132–2600 | 7–2⅞x13½ | Y | Ful 5A430 | 5 | Tim 58415 | B | R | **–6.1 | Tim 35011TW | Ws4A | | | 600 | 928 | C | TM | 68¼ | 9¾x3x¼ | |
| 16 | D-1B | 6500 | 149 | 220 | 25000 | 9500 | 10.00/20 | 11.00/20 | Con 22R | 6–4½x5¼ | 501 | 5.4 | 384 | 148–2400 | 7–2⅞x14½ | Y | Ful 5A620 | 5 | Tim Q-100 | B | R | **–6.83 | Tim 35011TW | Ws4A | | | 600 | 928 | C | TM | 68¼ | 9½x3x¼ | |
| 17 | D-1C | 6000 | 162 | 220 | 29000 | 9500 | 11.00/20 | 11.00/22 | Con T6427 | 6–4⅛x4¼ | 427 | 5.1 | 340 | 132–2600 | 7–2⅞x13½ | Y | Ful 5A430 | 5 | Tim Q-300 | S2 | R | **–7.84 | Tim 35011TW | Ws4A | | | 673 | 1031 | C | TM | 68¼ | 9¾x3x¼ | |
| 18 | D-2K | 7400 | 149 | 220 | 29000 | 10000 | 11.00/20 | 11.00/22 | Wau 140GK | 6–4½x5½ | 525 | 6.4 | 425 | 168–2400 | 7–2¾x13⅜ | Y | Ful 5A620 | 5 | Tim S-200P | S2 | R | **–7.84 | Tim 35011TW | Ws4A | | | 673 | 1031 | C | TM | 68¼ | 10x3½x⅛ | |
| 19 | D-2Z | 7550 | 149 | 220 | 29000 | 10000 | 11.00/20 | 11.00/20 | Wau 140GZ | 6–4⅝x5½ | 554 | 6.4 | 456 | 184–2400 | 7–3¼x13⅞ | Y | Ful 5A650 | 5 | Tim S-200P | S2 | R | **–7.84 | Tim 35011TW | Ws4A | | | 673 | 1031 | C | TM | 68¼ | 10x3½x⅛ | |
| 20 | D-2B | 7285 | 162 | 220 | 29000 | 10000 | 11.00/20 | 11.00/22 | Con 22R | 6–4½x5¼ | 501 | 5.4 | 384 | 148–2400 | 7–2¾x14½ | Y | Ful 5A620 | 5 | Tim S-200P | B | R | **–7.84 | Tim 35011TW | Ws4B | | | 673 | 1031 | C | TM | 68¼ | 10x3½x⅛ | |
| 21 | D-3 | 7900 | 149 | 220 | 29000 | 10000 | 11.00/20 | 11.00/22 | Con R6572 | 6–4⅝x5⅝ | 572 | 5.9 | 440 | 189–2600 | 7–3¼x14½ | Y | Ful 5A650 | 5 | Tim S-200P | S2 | R | **–7.84 | Tim 35011TW | Ws4B | | | 673 | 1031 | C | TM | 68¼ | 10x3½x⅛ | |
| 22 | D-3S | 8050 | 149 | 220 | 29000 | 10000 | 11.00/20 | 11.00/22 | Con R6602 | 6–4⅞x5⅝ | 602 | 5.9 | 463 | 198–2600 | 7–3¼x14½ | Y | Ful 5A650 | 5 | Tim S-200P | S2 | R | **–7.84 | Tim 35011TW | Ws4B | | | 673 | 1031 | C | TM | 68¼ | 10x3½x⅛ | |
| 23 | D-5 | 10300 | 149 | 220 | 35000 | 12500 | 11.00/22 | 11.00/24 | Cum HB600 | 6–4⅞x6 | 672 | 17 | 500 | 150–1800 | 7–4½x16¾ | Y | Ful 5A650 | 5 | Tim U-200 | S2 | R | **–6.42 | Tim 27454 | Ws4B | | | 681 | 1041 | C | TM | 68¼ | 10x3½x⅛ | |
| 24 | Willys (8d.Del.)463 | 1395● | 104 | 104 | 4000 | *2752 | 6.50/15S | | Own 463 | 4–3½x4⅜ | 134 | 6.5 | 105 | 63–4000 | 3–2.33xo 48 | N | WG T96 | 3 | Spl 23–1 | Hy‡ | H | 4.88–5.38 | Own I Tr | B4IH | | | 133 | 220 | a | 2I | | 5x2¼x.063 | TfD |
| 25 | Willys 2WD | 1346● | 118 | 118 | 5300 | *2788 | 6.50/16S | 7.00/16S | Own 2WD | 4–3⅛x4⅜ | 134 | 6.5 | 105 | 60–4000 | 3–2.33x5.48 | N | WG T90E | 3 | Tim51540NX3 | S‡ | H | 5.38–6.17 | Cla F-154 | B4IH | | | 176 | 276 | a | 2I | 42.28 | 5½x2x⅛ | TD |
| | **Four-Wheel-Drive** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | Corbitt 22FG | | 159 | Opt | 22000 | | 9.00/20 | 10.00/20 | Con B6371 | 6–4½x4½ | 371 | 6.0 | 280 | 100–2600 | 7–2⅞x13½ | Y | Fu 5A43 | 5 | Tim R2090H | 2F | H | ** –8.43 | Tim F2090H | L4IHV | | | .... | 868 | a | TD | 74 | 9x3x¼ | DL |
| 27 | Dodge B-1-PW | | 126 | 126 | 8700 | | 7.50/16-8 | 9.00/16-8 | Own T-137 | 6–3¼x4½ | 230 | 6.7 | 185 | 94–3200 | 4–2½x4.8 | Y | NP-38580 | 4 | Own T-137 | HyF | H | 4.8–5.8 | Own T-137 | O4IH | 210 | 311 | Co | TX | 52½ | ⅄x2⅛x6½ | C |
| 28 | FWD HA | | 132 | 156 | 17000 | ▲7470 | 8.25/20D | 10.00/20 | Wau BZ | 6–4x4¼ | 320 | 5.9 | 237 | 104–3000 | 7–2⅝x10¼ | Y | Own H | 5 | Own H | SF | H | 6.6 –9.06 | Own H | L4IHV | 391 | 807 | a | T4 | 79½ | 9x3x¼ | T |
| 29 | HR | | 132 | 154 | 20000 | ▲8000 | 9.00/20 | 10.00/20 | Wau MZA | 6–4¼x4¾ | 404 | 5.6 | 291 | 129–2800 | 7–2⅝x12⅝ | Y | Own H | 5 | Own H | SF | H | 6.6 –9.06 | Own H | L4IHV | 391 | 807 | a | T4 | 79½ | 9x3x¼ | T |
| 30 | HG | | 154 | 154 | 20000 | ▲8050 | 9.00/20 | 10.00/20 | Wau MZA | 6–4¼x4¾ | 404 | 5.6 | 291 | 129–2800 | 7–2⅝x12⅝ | Y | Own H | 5 | Own H | SF | H | 6.6 –9.06 | Own H | L4IHV | 391 | 807 | a | T4 | 89¾ | 7⅄x3x⅛ | |
| 31 | SU | | 150 | 182 | 28000 | ▲10570 | 11.00/20D | 11.00/20 | Wau 8RKR | 6–4⅝x5½ | 517 | 5.5 | 365 | 126–2400 | 7–3x13½ | Y | Own U | 5 | Own U | BF | H | 6.7 –9.8 | Own U | L4IHV | 512 | 867 | a | T4 | 90 | 8⅄x3x⅛ | C |
| 32 | M7 | | 150 | 180 | 38600 | ▲15500 | 12.00/20D | 12.00/24 | Wau 145GK | 6–5¼x6 | 779 | 6.2 | 585 | 186–2000 | 7–3½x17¾ | Y | Own M | 10 | Tim 1758 | 2F | H | ** –7.33 | Wis F409 | Ws4IA | 578 | 976 | a | T4 | 90 | 10⅄x3x⅛ | C |
| 33 | (D) M7D | | 150 | 180 | 38600 | ▲15700 | 12.00/20D | 12.00/24 | Bu DC844 | 6–5½x6½ | 844 | | 605 | 180–1800 | 7–3¾x17 | Y | Own M | 10 | Tim 1758 | 2F | H | ** –7.33 | Wis F409 | Ws4IA | 578 | 976 | a | T4 | 90 | 10⅄x3x⅛ | C |
| 34 | M10 | | 150 | 180 | 44000 | 15800 | 11.00/24D | 12.00/24D | Wau 145GK | 6–5¼x6 | 779 | 6.2 | 585 | 186–2000 | 7–3½x17¾ | Y | Own M | 10 | Tim 79721 | 2F | H | ** –7.7 | Wis F409 | Ws4IA | 614 | 1030 | a | T4 | 90 | 10⅄x3x⅄ | C |
| 35 | (D) M10D | | 150 | 180 | 44000 | ▲16440 | 11.00/24D | 12.00/24 | Bu DC844 | 6–5½x6½ | 844 | | 605 | 180–1800 | 7–3¾x17 | Y | Own M | 10 | Tim 79721 | 2F | H | ** –7.7 | Wis F409 | Ws4IA | 614 | 1030 | a | T4 | 90 | 10⅄x3x⅄ | C |
| 36 | Marmon-Herr. MH440-4 | | 158 | 170 | 24000 | ▲9300 | 9.00/20D | 10.00/20 | Her WXLC3 | 6–4¼x4⅝ | 404 | 5.4 | 293 | 118–2800 | 7–2⅝x13¼ | Y | Fu 5A430 | 5 | Tim R2090W | 2B | H | ** –8.43 | Tim F2090W | W A | 584 | 887 | c | F | 72 | 9½x3x¼ | T |
| 37 | MH555-4 | | 161 | 173 | 28000 | ▲10200 | 10.00/20D | 11.00/20 | Her RXC | 6–4½x5¼ | 529 | 6.3 | 390 | 131–2200 | 7–3x13¾ | Y | Fu 5A620 | 5 | Tim R3100W | 2B | H | ** –8.15 | Tim F3100W | W A | 692 | 1039 | c | F | 72 | 10⅄x3x⅛ | T |
| 38 | (C) CM5-4 | | 134 | 134 | 13500 | ▲4847 | 7.50/20D | 7.50/20 | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –6.67 | Own M5 | F H | 303 | 563 | a | F | 84⅛ | 7x2¾x⅛ | T |
| 39 | (C) CM6-4 | | 158 | 158 | 13500 | ▲4973 | 7.50/20D | 7.50/20 | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –6.67 | Own M5 | F H | 303 | 563 | a | F | 84⅛ | 7x2¾x⅛ | T |
| 40 | (C) LD6P-4 | | 114 | | | | 15● | 15● | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | T | ** –4.11 | Own O | F H | 162 | | A | F | | | X |
| 41 | (C) LD6-4 | | 114 | | 4700 | ▲2719 | 15● | 15● | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –4.11 | Own O | F H | 162 | | A | F | 40⅄ | 5½x2¼x⅄ | T |
| 42 | (C) OT5-4 | | 122 | | 6800 | ▲4500 | 7.50/17 | 7.50/17 | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –4.86 | Own I | F H | 186 | | A | F | 48 | 6x2¼x⅄ | T |
| 43 | (C) R4-4 | | 134 | 158 | 7500 | | 7.00/18S | 7.00/18 | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –5.33 | Own | F H | 303 | 563 | A | F | 60⅄ | 7x2¾x⅛ | T |
| 44 | (C) RSA-COE4 | | 110 | 110 | 13500 | | 7.50/20D | 7.50/20 | Ford | 8–3⅛x3⅜ | 239 | 6.4 | 180 | 100–3800 | 3–2½x4.71 | N | Ford | 4 | Ford | S | H | ** –6.67 | Own | F H | 303 | 563 | A | F | 60⅄ | 7x2¾x⅛ | T |
| 45 | Oshkosh W-312 | | 149 | 204 | 25000 | 10200 | 10.00/20 | 11.00/20S | Her WXLO3 | 6–4¼x4¾ | 404 | 6.3 | 312 | 139–2500 | 7–2⅝x13¾ | Y | Fu 5A43 | 5 | Own W312 | SF | H | ** –7.8 | Own W312 | L41I | 560 | 867 | G | TX | 82 | 8¼x⅄x⅝ | TF |
| 46 | W1700 | | 150 | 205 | 28000 | 11000 | 11.00/20D | 12.00/20S | Her RXC | 6–4½x5¼ | 529 | 5.4 | 395 | 131–2200 | 7–3x13¾ | Y | Fu 5A620 | 5 | Own W1700 | SF | H | ** –6.4 | Own 1700 | L4IH | 630 | 975 | G | TX | 82 | 8¼x3x⅝ | TF |
| 47 | W-700 | | 150 | 204 | 30000 | ▲12000 | 11.00/20D | 12.00/20S | Her RXCO | 6–4½x5¼ | 529 | 5.4 | 395 | 131–2200 | 7–3x12¾ | Y | Fu 5A620 | 10 | Own W700 | 2F | H | ** –6.6 | Own W700 | L4IH | 630 | 975 | G | TX | 82 | 10½x3x⅝ | TF |
| 48 | W-703 | | 150 | 204 | 30000 | ▲12200 | 11.00/20D | 12.00/20S | Her RXLD | 6–4¼x5¼ | 558 | 5.4 | 430 | 150–2200 | 7–3½x13¼ | Y | Fu 5A620 | 10 | Own W700 | 2F | H | ** –6.6 | Own W700 | L4IH | 630 | 975 | G | TX | 82 | 10½x3x⅝ | TF |
| 49 | W-705 | | 150 | 204 | 30000 | ▲12200 | 11.00/20D | 12.00/20S | Her RXLD | 6–4¼x5¼ | 558 | 5.4 | 430 | 150–2200 | 7–3½x13¼ | Y | Fu 5A620 | 10 | Own W700 | 2F | H | ** –6.6 | Own W700 | L4IH | 630 | 975 | G | TX | 82 | 10½x3x⅝ | TF |
| 50 | (D) W-906 | | 158 | 190 | 38000 | ▲15600 | 12.00/20D | 14.00/20S | Cum HB600 | 6–4⅛x6 | 672 | | 500 | 150–1800 | 7–4½x16 | Y | Fu 4A86 | 12 | Own W906 | 2F | H | ** –6.2 | Own W906 | LT4IW8 | 645 | 975 | G | TX | 90 | 10½x3½x⅝ | TF |
| 51 | W2200 | | 160 | 181 | 40000 | 16500 | 13.00/20D | 14.00/20S | Bu MO779 | 6–5½x6 | 779 | | 575 | 188–2100 | 7–3¾x17 | Y | Fu 4A86 | 12 | Own W2200 | 2F | H | ** –6.14 | Own 2200 | LT4IA | 645 | 975 | G | TX | 90 | 10½x3½x⅝ | TF |
| 52 | W2201 | | 160 | 181 | 40000 | 16500 | 13.00/20D | 14.00/20S | Bu MO893 | 6–5½x6 | 893 | | 625 | 200–1800 | 7–3¾x17 | Y | Fu 4A86 | 12 | Own W2200 | 2F | H | ** –6.14 | Own 2200 | LT4IA | 645 | 975 | G | TX | 90 | 10½x3½x⅝ | TF |
| 53 | (D) W2204 | | 160 | 181 | 46000 | 18500 | 13.00/20D | 14.00/24 | Bu 6DC844 | 6–5½x6 | 844 | | 605 | 180–1800 | 7–3¾x17 | Y | Fu 4A86 | 12 | Own W2204 | 2F | H | ** –6.4 | Own 2204 | LT4IA | 740 | 1190 | G | TX | 90 | 10½x3½x⅝ | TF |
| 54 | Peterbilt(D)270DD | | 165 | Opt | 27000 | 12500 | 10.00/20D | 11.00/22 | Cum HB600 | 6–4⅞x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Spl 7741 | 12 | U-200P | 2F | R | ** –6.42 | Tim'36000W | Ws4IA | 800 | 1250 | a | FD | 80½ | 10½x3‡x⅄ | TL |
| 55 | Sterling DD115 | | 160 | 178 | 32000 | 11500 | 10.00/20 | 11.00/24 | Wau 6SRKR | 6–4⅝x5½ | 517 | 5.5 | 368 | 125–2250 | 7–3x13⅞ | Y | Fu 5A62▵ | 10 | Tim 1357W | 2F | R | 6.65–8.6 | Tim F3110W | Ws4IA | 644 | 984 | A | TX | 76 | 9x3⅛x⅛ | A |
| 56 | (D) DD145H | | 167 | 185 | 36000 | 13900 | 11.00/20 | 12.00/24 | Cum HB600 | 6–4⅞x6 | 672 | 17. | 500 | 150–1800 | 7–4½x16½ | Y | Fu 4B86** | 10 | Tim 1758W | 2F | R | 7.33–10.3 | Tim F409CW | Ws4IA | 644 | 984 | A | TX | 77 | 9¼x3⅝x⅜ | A |
| 57 | Walter(c.f.) FN | | 126 | 150 | 20000 | 7500 | 9.00/20D | 10.00/20S | Wau MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 125–2600 | 7–2⅝x12½ | Y | Own FN | 6 | Own FNB | 2 | H | 6.0–8.0 | Own FN | O4IA | 470 | 670 | G | FI | 84 | 7x2¾x⅛ | C |
| 58 | (c.f.) FZM | | 126 | 150 | 24000 | 8500 | 10.00/20D | 12.00/20S | Wau MZA | 6–4¼x4¾ | 404 | 5.6 | 290 | 125–2600 | 7–2⅝x12½ | Y | Own FN | 6 | Own FMB | 2 | H | 6.0–8.0 | Own FJ | O4IA | 470 | 670 | G | FI | 84 | 12x3½x½ | B |
| 59 | (c.f.) FCK | | 126 | 138 | 30000 | 10500 | 10.00/24D | 11.00/24S | Wau 8RKR | 6–4⅝x5¼ | 517 | 5.5 | 365 | 125–2200 | 7–3x13¾ | Y | Own FC | 6 | Own FCB | 2 | H | 7.5–9.0 | Own FC | O4IA | 585 | 890 | D | FI | 84 | 13x3¼x½ | B |
| 60 | (c.f.) FC | | 138 | 162 | 32000 | 11000 | 11.00/24D | 12.00/24S | Wau 8RKR | 6–4⅝x5¼ | 517 | 5.5 | 365 | 125–2200 | 7–3x13¾ | Y | Own FC | 6 | Own FCB | 2 | H | 7.5–9.0 | Own FCR | O4IA | 585 | 890 | D | FI | 84 | 14x3¾x½ | B |
| 61 | (c.f.) FGB | | 126 | 162 | 32000 | 12000 | 11.00/24D | 12.00/24S | Wau 145GK | 6–5¼x6 | 779 | 5.7 | 580 | 185–2000 | 7–3½x17¾ | Y | Own FA | 6 | Own FCB | 2 | H | 7.5–9.0 | Own FCR | O4IA | 585 | 890 | D | FI | 89 | 14x3¾x½ | B |
| 62 | (c.f.) FGR | | 126 | 162 | 42000 | 13000 | 12.00/24D | 12.00/24 | Wau 145GK | 6–5¼x6 | 779 | 5.7 | 580 | 185–2000 | 7–3½x17¾ | Y | Own FA | 6 | Own FCR | 2 | H | 7.5–9.0 | Own FCR | O4IA | 585 | 890 | D | FI | 89 | 14x3¾x½ | B |
| | Willys | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | Unv. Jp. CJ-2A | 1195● | 80 | 80 | 3500 | *2169 | 6.00/16 | 7.00/15 | Own CJ-2A | 4–3⅛x4⅛ | 134 | 6.5 | 105 | 60–4000 | 3–2.33x5.48 | N | WG T90C | ‡6 | Spl 41-2 | Hy‡ | H | ** –5.38 | Spl 25 | B4IH | 118 | 198 | a | F | | 4x1¾x⅄ | P |
| 64 | 4WD | 1650● | 118 | 118 | 5300 | *2920 | 7.00/16 | | Own 4WD | 4–3⅛x4⅜ | 134 | 6.5 | 105 | 60–4000 | 3–2.33x5.48 | Y | WGT90A | ‡6 | Tm1 5540NX3 | 8½ | H | ** –5.38 | Spl 25 | B4IH | 176 | 276 | a | 2I | 42.28 | 5½x2x⅄ | TD |

▲ Includes Cab.
‡ Rear only; Front 12.00/24.
† Rear only; Front 11.00/24.
‡ Three speed transmission—2 speed transfer case.
● Complete vehicle with pick-up type body.
● Auxiliary transmission Own FJ.
▵ Timken T76—2 speed transfer case.
** Timken T77 2-speed Transfer Case.
* Front only; Rear 8.25/20

(Turn to page 118, please)




An LS Body built for Southern Dairies division of National Dairy by Transport Equipment Co., Savannah, Georgia.

# DAIRY PRODUCTS

## *Another Industry Widely Served*

## by LINDSAY BODIES

### 7 BIG REASONS
**for Standardizing on Lindsay Bodies**

1. **EASE OF REPAIR**
A Lindsay Body can be repaired quickly—damaged panels easily removed—replacements available from warehouse stocks.

2. **NATIONWIDE SERVICE**
There are 207 authorized Lindsay Body Builders, thus, you can get complete factory service on any Lindsay Body any place in the country. Your branch offices can also buy new bodies locally and know that they conform in every way to your standard specifications.

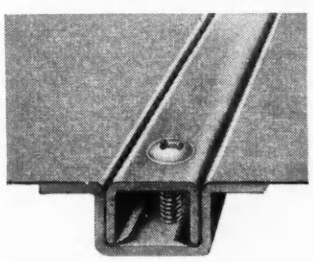
3. **SPEED OF DELIVERY**
Lindsay Bodies—one or a hundred—are built in record time. This modern method of assembly is ideal for line production.

4. **STRENGTH AND SAFETY**
LS has an amazingly high strength-weight ratio. A Lindsay Body withstands wear—saves weight—increases payload.

5. **APPEARANCE**
The rugged beauty of LS is adaptable to your individual design requirements.

6. **UNIFORMITY**
Units in your fleet can be identical yet built in entirely different parts of the country.

7. **EXPERIENCE**
Lindsay Bodies stand the test of actual service. The strongest and most frequently heard reason given for the purchase of Lindsay Bodies last year was—"We've used them before."



Among all fleet operators who maintain high standards of appearance and service in their units, Lindsay Bodies are finding wide acceptance. Built to meet exact requirements, and exceptionally strong, they give long service and retain their fine appearance to give years of low cost transportation.

Where there is an industry that serves its public by truck, fleet after fleet is choosing Lindsay Bodies. The dairy industry is one example. From coast to coast, most of the leading brands are delivered by Lindsay Bodies.

For your truck bodies, are you Appearance conscious?—Service conscious?—Cost conscious? It will pay you then to see your local authorized Lindsay Builders—or write. **The Lindsay Corporation, 1724 25th Ave., Melrose Park, Ill. Sales Offices: Chicago, New York, San Francisco.**

# LINDSAY STRUCTURE

U. S. Patents 2017629, 2263510, 2263511
U. S. and Foreign Patents and Patents Pending

(Continued from Page 116)

## Six-Wheelers

Wheels ▼ Driven

| Line Number | MAKE AND MODEL | Chassis List Price | WHEEL-BASE Minimum Standard | WHEEL-BASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES D-dual rear S-single rear Standard Front and Rear | TIRE SIZES Maximum Authorized Tire Size (Dual unless noted) | ENGINE DETAILS Make and Model | No. of Cylinders, Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings Number, Diameter and Length | Governor Standard | TRANSMISSION Make and Model | Forward Sp'ds | REAR AXLE Make and Model | REAR AXLE Gear and Type | REAR AXLE Drive & Torque | REAR AXLE Gear Ratio Range in High | FRONT AXLE Make and Model | BRAKES SERVICE Make Location Type Oper'a | BRAKES SERVICE Lining Area | BRAKES SERVICE Drum Area | BRAKES SERVICE Drum Material | BRAKES Hand Location Type | C-A Dimension (Min. Std. W. B.) | FRAME Side Rail Dimensions | FRAME Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Six-Wheelers** Wheels ▼ Driven | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Federal....663MA | | 189 | 225 | 40000 | 14500 | 10.00/20 | 10.00/22 | Con R6602 | 6–4 1/16x5 1/2 | 602 | 6.1 | 464 | 200–2600 | 7–3 1/4x14 1/2 | Y | Fu 5A65▼ | 15 | T SW3012P | WF | R | ** –6.16 | Tim 36000TW | Ws6IA | 1082 | 1569 | a | TD | 108 | 10 1/4x3 1/4x 1/2 | T |
| 2 | .....664MAB | | 189 | 225 | 55000 | 15850 | 11.00/22 | 12.00/20 | Con R6602 | 6–4 1/16x5 1/2 | 602 | 6.1 | 464 | 200–2600 | 7–3 1/4x14 1/2 | Y | Spi 7741▼ | 12 | Tim SW456P | WF | R | ** –7.6 | Tim 27452W | Ws6IA | 1308 | 1888 | a | TD | 108 | 10 1/4x3 1/4x 1/2 | T |
| 3 | .....664MA | | 189 | 225 | 55000 | 15950 | 11.00/22 | 12.00/20 | Con R6602 | 6–4 1/16x5 1/2 | 602 | 6.1 | 464 | 200–2600 | 7–3 1/4x14 1/2 | Y | Spi 7741▼ | 12 | Tim SD462P | BR | R | ** –8.15 | Tim 27452W | Ws6IA | 1092 | 1624 | a | TD | 108 | 10 1/4x3 1/4x 1/2 | T |
| 4 | F.W.D.....M6x6 | | Opt | Opt | 58000 | ▲21400 | 11.00/24D | 11.00/24 | Wau 145GK | 6–5 1/4x6 | 779 | 6.2 | 585 | 186–2000 | 7–3 1/2x17 3/4 | Y | Own M | 10 | Wis SD462 | 2F | L | ** –10.6 | Wis F409 | Ws6IA | 1080 | 1680 | a | T6 | 183 | 10 1/2x3x ‡‡ | P |
| 5 | (D)....M6X6D | | Opt | Opt | 58000 | ▲21600 | 11.00/24D | 11.00/24 | Bu DC844 | 6–5 1/4x6 1/2 | 844 | ... | 605 | 180–1800 | 7–3 3/4x17 | Y | Own M | 10 | Wis SD462 | 2F | L | ** –10.6 | Wis F409 | Ws6IA | 1080 | 1680 | a | T6 | 216 | 10 1/2x3x ‡‡ | P |
| | **International (2)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | .....KB-6F 4R | 3150 | 151 | 194 | 22000 | 7010 | 7.50/20D | 8.25/20 | Own BLD250 | 6–3 1/2x4 1/2 | 251 | 6.3 | 200 | 100–3200 | 4–2 1/2x5 ‡‡ | N | Own F51 | 5 | Own RF1450 | SF | H | 6.16–6.66 | Own F470 | LH41HV | 495 | 869 | c | PX | 77 | 8 1/2x 1/2x 1/2 | T |
| 7 | .....KB-8F 4R | 4700 | 161 | 215 | 27000 | 8670 | 8.25/20D | 9.00/20 | Own RED361 | 6–4 1/2x4 1/2 | 361 | 6.3 | 282 | 126–3000 | 7–3 1/4x10 ‡‡ | Y | Own F52 | 5 | Own RF1560 | SF | H | 6.50–7.16 | Own F550 | LH61HV | 644 | 1105 | c | PX | 84 | 9 1/4x3 1/2x 3/4 | T |
| 8 | .....KB-11F 4R | 7125 | 161 | 215 | 37000 | 10830 | 9.00/20D | 10.00/20 | Own RED450 | 6–4 3/4x5 | 451 | 6.3 | 360 | 148–2600 | 7–3 1/4x10 ‡‡ | Y | Own F54 | 5 | Own RF1670 | SF | H | ** –7.16 | Own F760 | TW61A | 738 | 1179 | G | PX | 84 | 10x3 1/2x x 3/4 | T |
| 9 | .....W4064L | 12425 | 203 | 239 | 40000 | 15750 | 10.00/22 | 11.00/22 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 492 | 150–1800 | 7–4 1/2x.... | Y | Spi 7741 | 4 | Tim SW3012 | WF | L | 4.71–6.16 | Own 82F | BW41A | 876 | ..... | ..... | PX | 108 | 10x3 1/2x 1/2 | C |
| 10 | .....W4564OH | 13200 | 188 | 242 | 45000 | 16635 | 10.00/22 | 11.00/22 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 492 | 150–1800 | 7–4 1/2x.... | Y | Spi 7741 | 4 | Tim SW456 | WF | H | 6.00–7.6 | Own 83F | BW41A | 1020 | ..... | ..... | PX | 90 | 10x3 1/2x 1/2 | L |
| 11 | .....W6564OH | 15700 | 206 | 302 | 65000 | 19895 | 11.00/24 | 12.00/24 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 492 | 150–1800 | 7–4 1/2x.... | Y | Spi 7741 | 4 | Tim SD466 | 2F | H | 8.15–11.66 | Own 82F | BW41A | ..... | ..... | ..... | PX | 108 | 10x3 1/2x 1/2 | L |
| | **Kenworth** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | .....(D)....522 | | 187 | 245 | 43000 | 12900 | 10.00/20 | 11.00/22 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL 7841 | 4 | Tim U200P& ‡ | ... | ... | ..... | Tim 36000TW | Ws41A | 1135 | ..... | ..... | ..... | ..... | 9 1/2x3 1/4x 1/2 | ..... |
| 13 | .....(D)523.4R | | 193 | 241 | 41000 | 14600 | 10.00/20 | 11.00/22 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL 7841 | 4 | Ti SW3012PA | WF | R | ** –6.16 | Tim 36000 | Ws4rIA | 924 | 1248 | a | TD | 102 | 9 1/2x3 1/4x 1/2 | C |
| 14 | .....(D)524.4R | | 193 | 241 | 54000 | 15100 | 10.00/20 | 11.00/22 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL 7841 | 4 | Tim SW452 | WF | R | 6.0 –7.6 | Tim 36000 | Ws4rIA | 819 | 1192 | a | TD | 102 | 9 1/2x3 1/4x 1/2 | C |
| 15 | .....528.4R | | 186 | 234 | 40000 | 12500 | 10.00/20 | 10.00/22 | Bud L0525 | 6–4 1/2x5 1/2 | 525 | 5.5 | 385 | 150–2200 | 7–3x11 1/2 | Y | Fu 5A620 | 5 | Ti SW3012PA | WF | R | ** –6.16 | Tim 35100 | Ws4rIA | 924 | 1248 | a | TD | 102 | 9 1/2x3 1/4x 1/2 | C |
| 16 | .....(D)548.4R | | 193 | 241 | 54000 | 17000 | 11.00/22 | 12.00/24 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL 7841 | 4 | Tim SD462 | WF | R | ** –8.15 | Tim 36000 | Ws4rIA | 819 | 1192 | a | TD | 109 | 9 1/2x3 1/4x 1/2 | db C |
| 17 | .....(D)552.4R | | 255 | 255 | 54000 | 20700 | 13.00/24 | 13.00/24 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL 7841 | 4 | Tim SD462W | WF | R | ** –8.15 | Tim F3200W | Ws4rIA | 1109 | 1192 | a | TD | 168 | 9 1/2x3 1/4x 1/2 | db C |
| 18 | (D).....825 | | 193 | 241 | 42000 | 14900 | 10.00/20 | 11.00/22 | Cum HB6 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | BL7841 | 4 | TGSW458P | WF | ... | 6.0–7.6 | Tim 36000 | Ws4rIA | 1016 | ..... | a | TD | 102 | 9 1/2x3 1/4x 1/2 | C |
| 19 | .....829 | | 186 | 234 | 42000 | 14650 | 10.00/20 | 11.00/22 | Bud LO525 | 6–4 1/2x5 1/2 | 525 | 5.5 | 385 | 150–2200 | 7–3x11 1/2 | Y | Fu5A620 | 5 | TSD3010P | DR | R | –8.27 | Tim 36000 | Ws4rIA | 924 | ..... | a | TD | 104 | 9 1/2x3 1/4x 1/2 | ..... |
| | **Marmon-Herr.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | (C).....CM5-6 | | 156 | .... | 22500 | ▲6673 | 7.50/20D | 7.50/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford | 4 | Timken | S | H | ** –6.67 | Own M5 | M | 503 | .... | a | F | 82 1/2 | 7 1/2x3x 1/4 | C |
| 21 | (C).....CM6-6 | | 180 | .... | 22500 | ▲6710 | 7.50/20D | 7.50/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford | 4 | Timken | S | H | ** –6.67 | Own M5 | M | 503 | .... | a | F | 106 1/4 | 7 1/2x3x 1/4 | C |
| 22 | .....MH440-6 | | 182 | .... | 34000 | ▲10600 | 9.00/20 | 10.00/20 | Her WXLC3 | 6–4 1/4x4 1/4 | 404 | 5.4 | 239 | 118–2800 | 7–2 5/8x13 1/4 | Y | Fu 5A430 | 5 | Tim SFD154 | 2B | H | ** –8.43 | Tim F2090W | Ws..A | 876 | .... | C | F | 96 | 9 1/4 x3x 1/4 | T |
| 23 | .....MH-555-6 | | 182 | .... | 42000 | ▲14900 | 11.00/20 | 11.00/20 | Her RXC | 6–4 9/16x5 1/4 | 529 | 6.3 | 390 | 131–2200 | 7–3x13 1/4 | Y | Fu 5A620 | 5 | Tim SD3000 | 2B | H | ** –8.15 | Tim F3200W | Ws..A | 1092 | 1608 | ... | F | 93 | 10 1/2 x3x 1/2 | T |
| 24 | (C) ...R5-COE6 | | 156 | 180 | 22500 | ..... | 7.50 /20D | 7.50/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford | 4 | Ford | S | H | 6.67 | Own | F...H | 303 | 563 | A | F | ..... | 7.08x2.8 1/4 | T |
| 25 | (C).....Q-5 | | 136 | 184 | 20000 | ..... | 9.00 /20 | 10.00/20 | Ford | 8–3 1/2x4 1/2 | 337 | 6.4 | 255 | 145–3600 | 3..... | .. | Ford | 5 | Ford | H | H | 6.80 | Own | F...H | 350 | 583 | A | F | 61 | 9x3x 1/4 | T |
| | **Oshkosh** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | .....W703-6X6 | | Opt | Opt | 47000 | 16950 | 11.00/20D | 12.00/20 | Her RXLD | 6–4 1/4x5 1/4 | 558 | 5.4 | 430 | 150–2200 | 7–3 1/2x13 1/4 | Y | Fu 5A650 | 12 | Tim SD454W | 2F | H | ** –6.31 | Own-Tim | L6IH | 1080 | 1625 | G | TX | Opt | 10 1/2 3 1/2 3/8 | B |
| 27 | (D)...W1600BD | | 245 | Opt | 60000 | 22770 | 11.00/24D | 12.00/24 | Bu 6DC844 | 6–5 1/4x6 1/2 | 844 | ... | 600 | 180–1800 | 7–3 3/4x17 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –6.14 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 160 | 12 3/4–3 1/4–3/8 | B |
| 28 | (D)‡W1600BDH | | 267 | Opt | 60000 | 24300▲ | 11.00/24D | 12.00/24 | Bu 6DC844 | 6–5 1/4x6 1/2 | 844 | ... | 600 | 180–1800 | 7–3 3/4x17 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –9.82 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 174 | 12 3/4–3 1/4–3/8 | B |
| 29 | (D)‡W1602BDH | | 272 | Opt | 95000 | 29300 | 14.00/24D | 14.00/24 | Bu 6DC844 | 6–5 1/4x6 1/2 | 844 | ... | 600 | 180–1800 | 7–3 3/4x17 | Y | Fu 4BI86 | 12 | Tim SD472 | 2F | H | ** –13.9 | Own-Tim | LT61A | ..... | 2217 | G | TX | 177 | 12 3/4–3 1/4–3/8 | B |
| 30 | .....W1600BG | | 245 | Opt | 60000 | 22770 | 11.00/24D | 12.00/24 | Bu MO893 | 6–5 3/4x6 | 893 | ... | 625 | 200–1800 | 7–3 3/4x17 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –9.82 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 160 | 12 3/4–3 1/4–3/8 | B |
| 31 | (D)...W1600CD | | 259 | Opt | 60000 | 23400▲ | 11.00/24D | 12.00/24 | Cum 6HBI | 6–4 1/2x6 | 672 | ... | 500 | 150–1800 | 7–4 1/2x16 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –6.14 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 174 | 12 3/4–3 1/4–3/8 | B |
| 32 | (D)...W1600CDS | | 259 | Opt | 60000 | 23700▲ | 11.00/24D | 12.00/24 | Cum 6HBIS | 6–4 1/2x6 | 672 | ... | 635 | 200–1800 | 7–4 1/2x16 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –9.82 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 174 | 12 3/4–3 1/4–3/8 | B |
| 33 | (D)..‡W1600CDH | | 265 | Opt | 60000 | 24000▲ | 11.00/24D | 12.00/24 | Cum 6HBI | 6–4 1/2x6 | 672 | ... | 500 | 150–1800 | 7–4 1/2x16 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –9.82 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 172 | 12 3/4–3 1/4–3/8 | B |
| 34 | (D)..‡W1600CDSH | | 267 | Opt | 60000 | 24300▲ | 11.00/24D | 12.00/24 | Cum 6HBIS | 6–4 1/4x6 | 672 | ... | 635 | 200–1800 | 7–4 1/2x16 | Y | Fu 4BI86 | 12 | Tim SD462 | 2F | H | ** –6.14 | Own-Tim | LT61A | 1080 | 1625 | G | TX | 174 | 12 3/4–3 1/4–3/8 | B |
| 35 | **Peterbilt(D)344DT** | | 189 | Opt | 43000 | 16250 | 10.00/20D | 11.00/22 | Cum HB600 | 6–4 1/4x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Spi 7741 | 12 | Tim SW3012W | WF | A | 6.00– 8.5 | T 36000W | Ws6IA | 1212 | 1734 | a | FD | 106 1/2 | 10 3/4x3 1/2x 1/2 | TL |
| 36 | (D).....345DT | | 187 | Opt | 54000 | 17300 | 10.00/20D | 11.00/22 | Cum HB600 | 6–4 1/4x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Spi 7741 | 12 | Tim SW456W | WF | A | 6.00–10.2 | T 36000W | Ws6IA | 1450 | 1626 | a | FD | 106 1/2 | 10 3/4x3 1/4x 1/2 | TL |
| 37 | (D).....354DT | | 187 | Opt | 56000 | 17450 | 10.00/20D | 11.00/22 | Cum HB600 | 6–4 1/4x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Spi 7741 | 12 | Tim SW456W | WF | A | 6.00–10.2 | T 27454W | Ws6IA | 1450 | 1626 | a | FD | 106 1/2 | 10 3/4x3 1/4x 1/2 | TL |
| 38 | (D).....355DT | | 187 | Opt | 56000 | 17900 | 10.00/20D | 11.00/22 | Cum HB600 | 6–4 1/4x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Spi 7741 | 12 | Tim SD462W | 2F | A | ** –8.15 | T 27454W | Ws6IA | 1000 | 1626 | a | FD | 106 1/2 | 10 3/4x3 1/4x 1/2 | TL |
| 39 | Reo.....C-256 | | 169 | 200 | 40000 | 13100▲ | 10.00/20 | 10.00/20 | Con T6427 | 6–4 1/16x4 1/16 | 427 | 6.2 | 336 | 153–2800 | 7–2 7/8x13.5 | Y | Cla 270V&■ | 15 | Tim SD3010 | SF2 | T | –7.5 | Tim 35000 | Ws4IA | 1020 | 1470 | var | TD | 104 3/8 | 9 1/4x3 1/4x x 1/2 | TfP |
| 40 | .....316 | | 186 | ▽248 | 54000 | 15550▲ | 10.00/20 | 10.00/20 | Con R6602 | 6–4 1/2x5 1/2 | 602 | 5.9 | 464 | 200–2600 | 7–3 1/4x14.5 | Y | Spi 6252&‡ | 15 | Tim SD454 | SF2 | T | 6.8–8.15 | Tim 36000 | Ws4IA | 1082 | 1570 | var | TD | 108 | 10 1/4x3 1/4x 3/4 | TfP |
| 41 | **Sterling...HBS130** | | 164 | 183 | 32000 | 11000 | 8.25/20 | 10.00/20 | Wau 6MZA | 6–4 1/4x4 1/4 | 404 | 5.6 | 290 | 130–3000 | 7–2 5/8x12 1/2 | Y | Fu 5A43 | 5 | T-SBD1555DPH | SF | L | 6.80–13.14 | T-35011H | T61HV | 664 | 1134 | A | TX | 83 | 9x3 1/4x 1/4 | A |
| 42 | .....HDS140 | | 164 | 183 | 36000 | 11800 | 9.00/20 | 10.00/20 | Wau 6MZA | 6–4 1/4x4 1/4 | 404 | 5.6 | 290 | 130–3000 | 7–2 5/8x12 1/2 | Y | Fu 5A43 | 5 | T-SD3010PA | 2F | L | 6.84–10.22 | T-35011TW | Ws6IA | 1074 | 1554 | A | TX | 83 | 9x3 1/4x 1/4 | A |
| 43 | .....HWS160 | | 164 | 183 | 42000 | 12800 | 10.00/20 | 11.00/22 | Wau 6SRKR | 6–4 9/16x5 1/2 | 517 | 5.5 | 368 | 125–2250 | 7–3x13 1/2 | Y | Fu 5A62 | 5 | T-SW3010PA | WF | L | 5.40–8.50 | T-36000TW | Ws6IA | 1082 | 1574 | A | TX | 83 | 9x3 1/4x 1/4 | A |
| 44 | .....HWS235 | | 182 | 193 | 52000 | 15700 | 11.00/20 | 11.00/24 | Wau 145GK | 6–5 1/4x6 | 779 | 6.2 | 585 | 186–2100 | 7–3 1/2x17 3/4 | Y | Fu 4B86 | 4 | T-SW456P | WF | L | 5.67–8.20 | T-27454W | Ws6IA | 1308 | 1892 | A | TX | 92 | 9 1/4x3 1/2x 3/4 | A |
| 45 | (D)...HWS160H | | 182 | 193 | 42000 | 14250 | 10.00/20 | 11.00/22 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu 4B86 | 4 | T-SW3012PA | WF | L | 4.71–6.17 | T-36000TW | Ws6IA | 1082 | 1574 | A | TX | 92 | 9x3 1/4x 1/4 | A |
| 46 | (D)...HWS235H | | 182 | 193 | 52000 | 16000 | 11.00/20 | 11.00/24 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu 4B86 | 4 | T-SW456P | WF | L | 5.66–8.20 | T-27454W | Ws6IA | 1308 | 1892 | A | TX | 92 | 9 1/4x3 1/2x 3/4 | A |
| 47 | .....HCS195 | | 170 | 189 | 48000 | 15300 | 10.00/20 | 11.00/22 | Wau 140GK | 6–4 1/2x5 1/2 | 525 | 6.0 | 426 | 142–2200 | 7–3 1/4x13 3/8 | Y | Fu5A62-3A92 | 15 | Own 195W | CD | R | 6.04–7.31 | T-36000TW | Ws6IA | 1082 | 1622 | A | TX | 83 | 9 1/4x3 1/2x 3/4 | A |
| 48 | .....HCS265 | | 182 | 193 | 60000 | 17750 | 11.00/20 | 12.00/24 | Wau 145GK | 6–5 1/4x6 | 779 | 6.2 | 585 | 186–2100 | 7–3 1/2x17 3/4 | Y | Fu 4B86♦ | 12 | Own 265W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1060 | 1732 | A | JX | 92 | 9 1/4x3 1/2x 3/4 | A |
| 49 | .....HCS297 | | 182 | 193 | 70000 | 20750 | 12.00/24● | 13.00/24▲ | Wau 145GK | 6–5 1/4x6 | 779 | 6.2 | 585 | 186–2100 | 7–3 1/2x17 3/4 | Y | Fu 4B86♦ | 12 | Own 330W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1280 | 1872 | A | JX | 92 | 9 1/4x3 1/2x 3/4 | AL |
| 50 | .....HCS330 | | 174 | 187 | 80000 | 23150 | 12.00/24 | 14.00/24▲ | Wau 145GK | 6–5 1/4x6 | 779 | 6.2 | 585 | 186–2100 | 7–3 1/2x17 3/4 | Y | Fu 4B86♦ | 12 | Own 330W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1280 | 1872 | A | JX | 91 | 12x3 1/2x 3/4 | AL |
| 51 | (D)...HCS195H | | 182 | 193 | 48000 | 16000 | 10.00/20 | 11.00/22 | Cum HB600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu4B86-3A92 | 12 | Own 195W | CD | R | 6.04–7.31 | T-36000TW | Ws6IA | 1082 | 1622 | A | TX | 92 | 9 1/4x3 1/2x 3/4 | A |
| 52 | (D)...HCS265H | | 182 | 193 | 60000 | 18100 | 11.00/20 | 12.00/24 | Cum HBD600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu 4B86♦ | 12 | Own 265W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1060 | 1732 | A | JX | 92 | 9 1/4x3 1/2x 3/4 | A |
| 53 | (D)...HCS297H | | 182 | 193 | 70000 | 21050 | 12.00/24● | 13.00/24▲ | Cum HBD600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu 4B86♦ | 12 | Own 330W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1280 | 1872 | A | JX | 92 | 9 1/4x3 1/2x 3/4 | AL |
| 54 | (D)...HCS330H | | 174 | 187 | 80000 | 23450 | 12.00/24 | 14.00/24▲ | Cum HBD600 | 6–4 1/2x6 | 672 | 17. | 500 | 150–1800 | 7–4 1/2x16 1/2 | Y | Fu 4B86♦ | 12 | Own 330W | CD | R | 9.21–13.16 | T-27454W | Ws6IA | 1280 | 1872 | A | JX | 91 | 12x3 1/2x 3/4 | AL |
| | **Truckstell** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | (C)...F2X26.2F | | 156 | 237 | 26000 | ▲5900 | 7.50/20 | 8.25/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford | 4 | Ford | SF | .. | ** –6.67 | Ford | F6IHV | 502 | 836 | Co | TX | 82 1/2 | 7 1/2x3x.47 | CT f |
| 56 | (C)...F2X27-0.2F | | 156 | 237 | 27000 | ▲6450 | 7.50/20 | 8.25/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford | 8 | Eat 1350 | SFd | .. | 5.83–8.11 | Ford | F6IHV | 502 | 836 | Co | TX | 82 1/2 | 7 1/2x3x.47 | CT f |
| 57 | (C)...F2X34.2F | | 156 | 237 | 34000 | ▲8335 | 7.50/20 | 9.00/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | F and BL | 12 | Cla R1250 | SF | .. | 5.67–6.83 | Ford | F6IHV | 635 | 1033 | Co | TX | 82 1/2 | 7 1/2x3x.47 | CT f |
| 58 | (C)...F2X34–0 | | 135 | 224 | 34000 | ▲8585 | 7.50/20 | 9.00/20 | Ford | 8–3 1/4x3 1/4 | 239 | 6.4 | 180 | 100–3800 | 3–2 1/2x4.71 | N | Ford and BL | 12 | Cla R1250 | SF | .. | 5.67–6.83 | Ford | F6IHV | 635 | 1033 | Co | TX | 82 1/2 | 7 1/2x3x.47 | CT f |

(Turn to page 203, please)

▼ Auxiliary transmission Spicer 703F with 3 forward speeds. ▲ Includes cab. ♦ Auxiliary transmission, Spicer 8031. ^ Rear only: Front 12.00/24. §—Hydraulic Coupling. ‡ Timken T13126 PA Trailing Axle.
● Rear only; Front 11.00/24. ▼ Special W.Bs. available on request. ‡ 8031F-G Spicer Auxiliary Transmission Available. ♦ Chassis Weights on Duals Front, Center and Rear. ■ 6231 Spicer Auxiliary Transmission

# MACK *Dimensional Control*

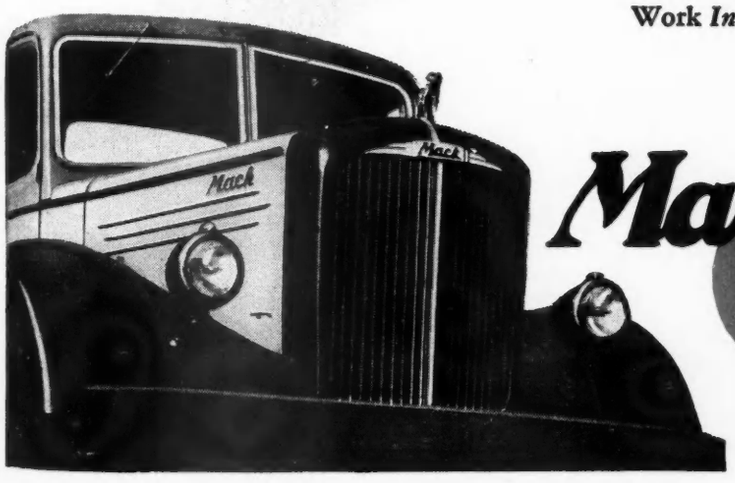
## what is it?

## how does it benefit a truck operator?

Simply described, Mack Dimensional Control is the planning and fabricating of every part in a Mack truck for perfect fit and uniform interchange. It calls for uncompromising adherence to exact clearances and rigid tolerances without equal in the truck industry.

How does Dimensional Control benefit you as a truck operator? It gives you trucks that are truly precision-engineered . . . trucks whose parts fit and work together in perfect co-ordination. It explains why you get uniformly thrifty performance and enduring reliability from every Mack truck you operate. And it saves you time and money on repairs because it makes possible easy re-assembly without need for prefitting of parts.

Mack Dimensional Control is one more example of the thorough planning and advanced thinking that goes into every Mack truck. It all adds up to this: You Get More Work *Out* of a Mack Truck — Because We Put More Work *Into* a Mack.




**Mack**

**trucks for every purpose**

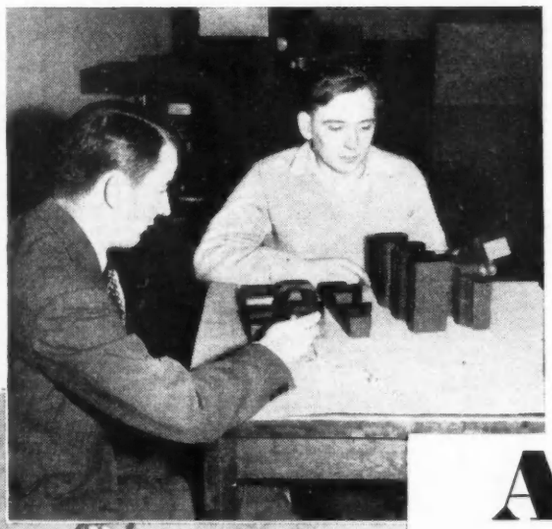
Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

THE WILLETT COMPANY

## APPRENTICE MECHANIC MASTER CONTROL SCHEDULE

| PERIOD | DATES | DEPT. 1 UNIT OVERHAUL | DEPT. 2 UNIT OVERHAUL | DEPT. 3 WELDING | DEPT. 4 MOTORS | DEPT. 5 DIESELS | DEPT. 6 TIRE ROOM | DEPT. 7 BATTERIES | DEPT. 8 BRAKES | DEPT. 9 TRAILER & BODY | DEPT. 10 P. M. S. INSPECTION | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | AUG. 19 AUG. 31 | | | | SUST | | | | | | | | |
| | SEPT. 2 SEPT. 14 | | | | | SUST | | | | | | | |
| | SEPT. 16 SEPT. 28 | | | | | | SUST 1 | SUST 2 | | | | | |
| II | SEPT. 30 OCT. 12 | | | | | | | | | | | | |
| | OCT. 14 OCT. 26 | | | | | | | | | | SUST | | |
| | OCT. 28 NOV. 9 | | | | | | | | | | | | |
| III | NOV. 11 NOV. 23 | SUST | | | | | | | | | | | |
| | NOV. 25 DEC. 7 | | SUST | | | | | | | | | | |
| | DEC. 9 DEC. 21 | | | SUST | | | | | | | | | |
| IV | DEC. 23 JAN. 4 '51 | | | | | | | | | | | | |
| | JAN. 6 JAN. 18 | | | | | | | | | | | | |
| | JAN. 20 FEB. 1 | | | | | | | | | | | | |
| V | FEB. 3 FEB. 15 | | | | | | | | | | | | |
| | FEB. 17 MAR. 1 | | | | | | | | | | | | |
| | MAR. 3 MAR. 15 | | | | | | | | | | | | |
| VI | MAR. 17 MAR. 29 | | | | | | | | | SUST | | | |
| | MAR. 31 APR. 12 | | | | | | | | SUST | | | | |
| VII | | | | | | | | | | | | | |

*ABOVE. Fig. 5. The Master Control form schedules each man through the various departments.*



*ABOVE. Fig. 1. View of classroom used in lecture and examination of apprentice mechanics.*

*TOP. Fig. 2. An applicant is given the O'Conner block test to check on mechanical aptitude.*

# Apprentice

## Tests and Forms

**Proposal for On-The-Job Training In Trade and Industrial Occupations**
State of Illinois, Board for Vocational Education
216 E. Monroe St., Springfield, Ill.

**Keystone Visual Survey Test**
Keystone View Co., Meadville, Pa.

**Purdue Mechanical Adaptability Test**
Division of Education and Applied Psychology
Purdue University, LaFayette, Ind.

**Scott I. Q. Test**
C. H. Stoelting Co., Chicago, Ill.

**Siebrecht Attitude Scale**
New York University, Div. for General Education
Washington Square
New York City, N. Y.

**Score Forms, Psychophysical Tests, Drivers and Mechanics**
The Willett Co., Chicago, Ill.

**Personal and Medical History**
The Willett Co., Chicago, Ill.

**Physician's Certificate Form 132**
The Willett Co., Chicago, Ill.

APPROXIMATE COST OF TRAINING PROGRAM
BASED ON 30 APPRENTICES

| ITEM | CALCULATIONS | COST PER MAN |
|---|---|---|
| SUPERVISION | $1800.00 PER YEAR ÷ 30 (APPRENTICES) = | 60 00 |
| INSTRUCTION AND CLERICAL | $10.00 PER CLASS X 45 (CLASSES) = $450.00 ÷ 30 = | 15 00 |
| EQUIPMENT | $3000.00 — COST OF COMPLETE SCHOOLROOM<br>$150.00 (COST OF ADD. EQUIP'T.-MECHANICS ÷ 30 = | 5 00 |
| LABOR | AVE. HOURLY PAY WHILE TRAINING — $1.37<br>50% PRODUCTIVE WHILE TRAINING = $0.70 (APPROX)<br>16 WK. X 48 HR. X $0.70 PER HR. = 537.60<br>$1.60 — 1.37 = $0.23 (SAVING ON MECHANIC OTHERWISE NEEDED)<br>34 WK. X 48 HR. X $0.23 PER HR. = 375.36<br>162.14 | 162 00 |
| GRADUATION | DIPLOMA $9.00<br>PARTY 1.00 = | 10 00 |
| TOTAL COST TO TRAIN EACH MAN PER YEAR | | $252 00 |

THE WILLETT COMPANY
MAN EVALUATION RECORD
DATE _____ 19__
NAME _____ CLASSIFICATION _____

| QUALITY | RATING | |
|---|---|---|
| | ADJECTIVE | NUMERICAL |
| 1. APTITUDE | | |
| 2. ATTITUDE | | |
| 3. COOPERATION | | |
| 4. DEPENDABILITY | | |
| 5. DEXTERITY | | |
| 6. PUNCTUALITY | | |
| 7. REGULARITY | | |
| 8. RESPONSIBILITY | | |
| 9. EXPRESSIBILITY | | |
| 10. LEADERSHIP | | |
| AVERAGE | | |

REMARKS

DIRECTIONS— GRADE EACH MAN ACCORDING TO THE FOLLOWING SCALE.

| | | | |
|---|---|---|---|
| SUPERIOR | 9.5-10.0 | SATISFACTORY | 7.0-7.4 |
| EXCELLENT | 8.5-9.4 | UNSATISFACTORY | 0-6.9 |
| VERY SATISFACTORY | 7.5-8.4 | | |

DEPARTMENT _____ FOREMAN OR INSTRUCTOR _____

*ABOVE. Fig. 4. The Man Evaluation Record for grading men in 10 qualities shown at left. This is made out by the foreman or instructors.*

*ABOVE LEFT. Fig. 8. A breakdown of training expenses shows cost per man in supervision, instruction, equipment and loss of labor.*

**Program involves scientific selection of applicants, extensive on-the-job training in all departments, examination and graduation. Costs $252 per man, but results are gratifying**

# Training . . . The Willet Way

*by* ***A. WALTER NEWMANN***
**Assistant to Executive Vice President**
**The Willett Co.**

THE CRITICAL situation we faced just after the war was similar to that experienced by others throughout the entire country. There existed a severe shortage of trained and experienced mechanics. Since we were signing new contracts and thereby increasing the number of trucks in our fleet, this manpower shortage presented a more disturbing problem.

Before the war we augmented our best crew of mechanics from time to time by sending our young apprentices, in the 18 to 20 year age group, to a trade school each Monday for classroom instruction. At the time, this arrangement met our needs, but, after the war a substantial number of older, more responsible men were needed to enable us to properly maintain our fleet.

We advertised in the newspapers and maintained constant contact with the United States Employment Service and other local agencies through the unions, but none of these were able to adequately supply us with the needed personnel.

The alternative, which proved to be a solution to this highly crucial situation. was to train apprentices ourselves. Ordinarily it requires at least four years to train an apprentice to be a capable and responsible mechanic. It was requisite that our training program provide good men in the shortest time possible. In view of the necessity for immediate results, we developed an On-The-Job Training Program, which consists of practical training in each of our maintenance departments in conjunction with regularly scheduled classroom instruction.

## Selection of Apprentices

WE wanted men with the best possible background, experience and training. We found these men among the ex-servicemen who had gained valuable experience working in vari-

(TURN TO PAGE 142, PLEASE)

* Excerpted from a paper presented at the SAE meeting in Philadelphia, March 29, 30 and 31.

# Light Weight Materials

## Cut Truck Weight 2100 Lb

**Consolidated Freightways finds aluminum and magnesium parts and accessories durable and practical. Cost of $1 per lb of weight saved is offset by larger payloads**

***by J. L. S. SNEAD, Jr.***
**Vice President—Operations and Maintenance Consolidated Freightways, Inc.**

**Comparison of Weights of Aluminum and Steel**

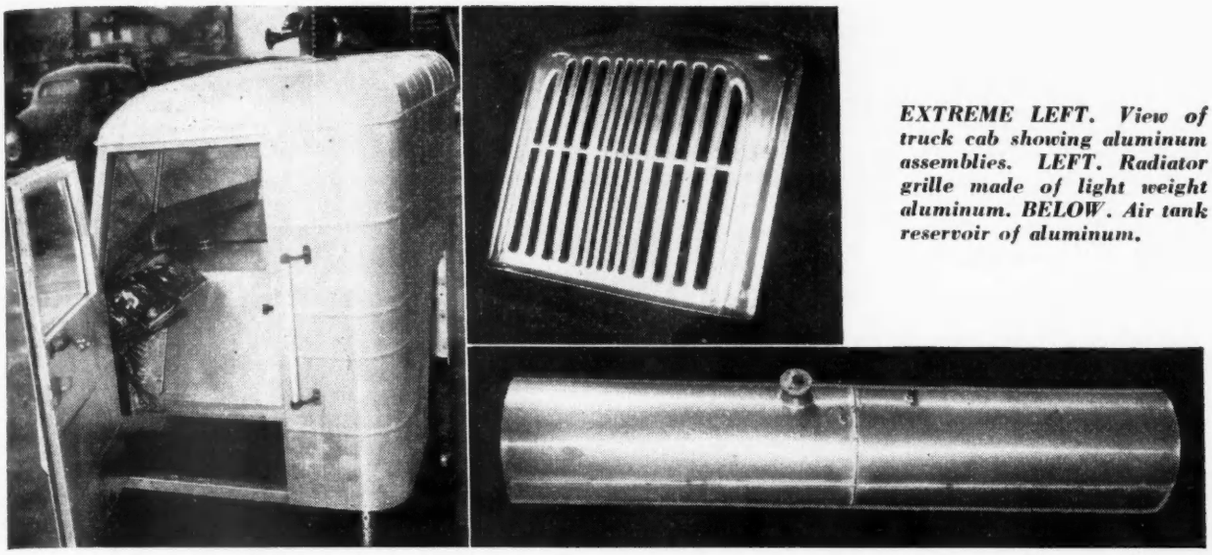
| Part | Aluminum | Steel |
|---|---|---|
| Accelerator Pedal | 1.12 lb | 3.5 lb |
| Air Reservoir Bracket | 1.5 (mag) | 2.25 (alum) |
| Axle Torque Bracket | 12.44 | 22.75 |
| Auxiliary Transmission Front Support and Crossmember | 21.8 | 34 |
| Auxiliary Transmission Rear Support | 1.75 (mag) | 4.75 |
| Battery Box | 40 | 67 |
| Brake Cam and Chamber Bracket | 4.33 | 7 |
| Brake Drum | 61 | 102 |
| Brake Shoe | 14.8 | 37 |
| Brake Spider | 20 | 43 |
| Cab Assembly | 370 | 590 |
| Clutch Adjuster | 1.1 | 3 |
| Clutch Air Assist Chamber Bracket | 2.25 | 5.25 |
| Clutch Idler Bracket | 2.5 | 9.5 |
| Clutch Lever Arm | .88 | 2 |
| Clutch Pedal | 2.93 | 5.5 |
| Clutch Pedal Pad | .37 | 1 |
| Compression Release Handle | .13 | 1 |
| Differential Carrier | 68.6 | 100 |
| Differential Filler Spout | .7 | 1.5 |
| Emergency Brake Cross Shaft Bracket | 1.5 | 2 |
| Emergency Brake Lever | .73 | 1 |
| Equalizer Cross Shaft Bracket | 10.88 | 15.5 |
| Frame Crossmember Gusset | 3 | 6.25 |
| Frame for Trailer Hook | 14.75 | 36.5 |
| Front Bumper | 19.5 | 48.5 |
| Front Engine Support | 16.8 | 30 |
| Front Spring Front Hanger Bracket | 7.75 | 19.25 |
| Front Spring Rear Hanger Bracket | 5 | 11 |
| Front Spring Shackle | 2.8 | 6 |
| Front Water Manifold | 2.25 | 9.25 |
| Fuel Tank | 60 | 102 |
| Hand Brake Cross Shaft | 3.75 | 10.25 |
| Idling Control Bracket | .5 | 1.5 |
| Idling Control Lever | .06 | .19 |
| Left Cab Floor | 59.7 | 93 |
| Lower Fifth Wheel | 265.8 | 369 |
| Radiator Inlet | 1 | 2.25 |
| Radiator Outlet | 2.25 | 7.25 |
| Radiator Shell Side | 13.25 (mag) | 25.25 (alum) |
| Rear Axle Housing | 171.3 | 240 |
| Rear Engine Support | 7 | 11 |
| Rear Spring Hanger Bracket | 26.01 | 41.5 |
| Serrated Spring Adjusting Pad | 1.5 | 5 |
| Spare Oil Can Holder | 3.5 | 6 |
| Spring Pad | 5.5 | 9 |
| Steering Gear Bracket | 12.9 | 26 |
| Throttle Lever Arm | .06 | .19 |
| Throttle Rod Bracket | .37 | 1.25 |
| Trailer Spring Adjusting Pad | 1.34 | 4 |
| Truck Crossmember | 8 | 13 |
| Truck Front Hub | 42 | 60 |
| Truck Rear Hub | 40.2 | 82 |
| Upper Fifth Wheel | 141.5 | 200 |

THE USE of weight-reducing materials in inter-city trucks and trailers is the direct result of the economic forces arising from the various state laws which limit the gross weight of axles, vehicles, and combinations. As the costs of material and labor rise, the incentive to reduce tare weight, and thereby increase net load and gross revenue, increases.

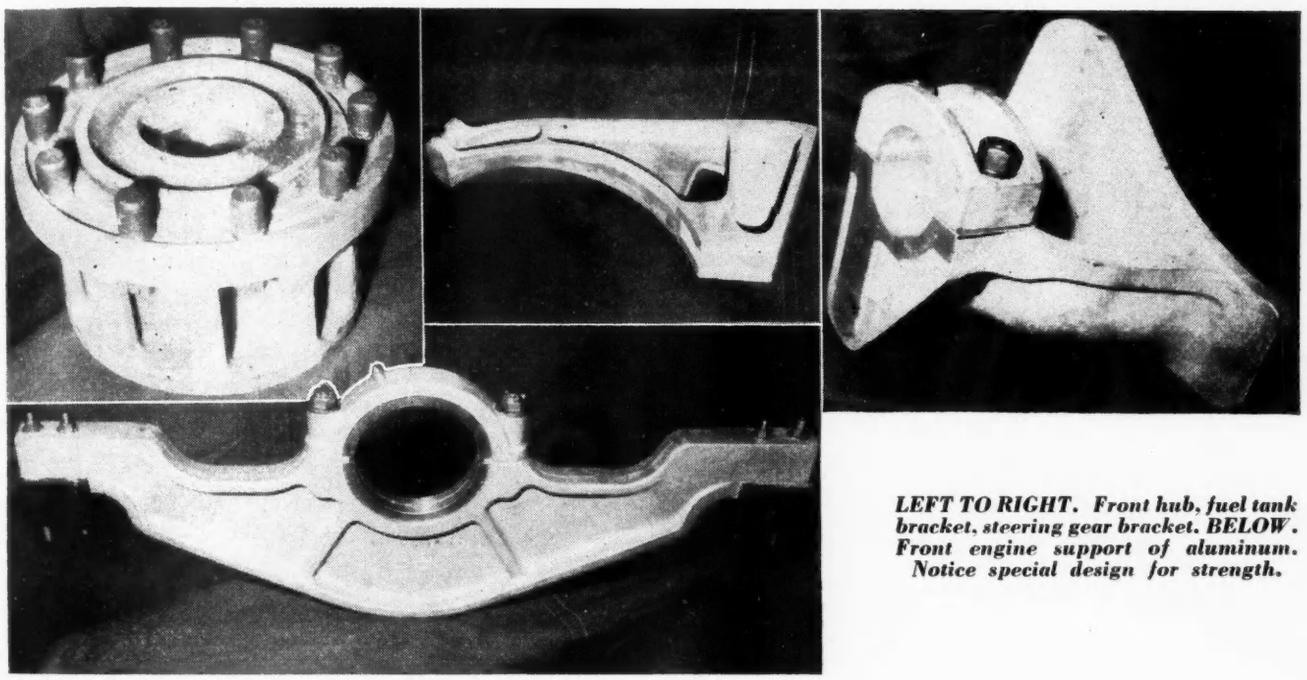
In 1929 we were using aluminum radiator tanks, side castings, transmission cases, clutch housings, pistons and upper and lower crankcases. In 1931 we were using aluminum body sheet on the sides of trailers. For several years thereafter, we experimented extensively—and expensively—with high tensile steel and aluminum applications ranging from 28 gauge body sheets to aluminum oil filler spouts. We found that whenever we were careful with material, alloy, heat treat, design, and application the results were excellent. When we were not, the results were disappointing.

In 1936 we obtained ten new trucks with heat treated aluminum alloy frames, cross numbers, spring hanger brackets, spring shackles, torque arms, torque arm brackets, bumpers, cabs and bodies. At the same time a substantial number of aluminum front hubs were put in service. Many of these now have well over one million

* Excerpted from a paper presented at the SAE meeting in Philadelphia, March 29, 30 and 31.



*EXTREME LEFT. View of truck cab showing aluminum assemblies. LEFT. Radiator grille made of light weight aluminum. BELOW. Air tank reservoir of aluminum.*



*LEFT TO RIGHT. Front hub, fuel tank bracket, steering gear bracket. BELOW. Front engine support of aluminum. Notice special design for strength.*

miles service with no failures, except in cab and body, which could be attributed to design or material. Serious difficulty arose, however, as a result of failure to provide protection against electrolytic action where dissimilar metals joined. Several years later, upon discovery of this mistake in assembly, corrective action was taken—but many parts were seriously damaged as a result of this.

### Weight Reduction Pays

WITH these decreased tare weights came the realization, based on loading records over a considerable period, that general commodities, such as are usually carried from the distributing centers of the west, were so bulky that it was not possible to take full advantage of the weight saving because of lack of body space. Favorable legislative action has since liberalized both length and height restrictions in many areas, but present day experience continues to bear out this conclusion. General freight loads are usually dispatched with all the body space completely filled, and the axle, vehicle and combination gross loads somewhat under those legally allowable. In the return direction with full load shipments of heavy commodities, such as lubricants, sheet metal, fruits, canned goods, sugar, vegetables, meat, dairy products, and forest products, full advantage may frequently be taken of the legal weight limits, and therefore, of any tare weight reductions which result from the use of weight-reducing materials. It is these loads, plus the percentage of heavy commodity outbound loads which can be brought up to legal weight, which make the extra cost of weight-reducing materials pay dividends.

On the basis of our experience, we regularly pay up to one dollar

(TURN TO NEXT PAGE PLEASE)

## Light Weight Metals

(CONTINUED FROM PAGE 123)

additional initial cost per pound of weight saved. In some instances we have paid more. Additional cost per pound is often reduced by lower freight and handling charges and by faster machining. In determining this limit, we have ignored the rather nebulous savings which may result from operating with a slightly lower gross when not loaded to legal capacity. It must be recalled that the value per pound of weight saving decreases sharply after passing the point at which loading space or shortage of available lading begin to substantially reduce the percentage of trips on which the equipment can be loaded to its legal capacity.

### Early Experimentation

IN 1937 we obtained our first cab-over-engine, six wheel truck in an effort to solve the problem raised by lack of body space. It had a 22 ft. body and could pull a 28 ft. six wheel trailer within the 60 ft. legal length limit. It is still in regular inter-city service after more than 1,000,000 miles.

In 1939 we built a number of cab-over-engine four wheel trucks with 16 ft. bodies which could legally pull 24 ft. full trailers where a 50 ft. length limit applied. These trucks had 3/16 high tensile steel frames and cross-members, high tensile steel cabs and many alloy steel castings designed to save as much weight as our experience had shown could safely be saved with such materials. Many of these trucks ran well over one million miles before changes in state length laws made them obsolete.

In 1940 we set out to design a completely new 60 ft. truck and trailer combination with the most loading space we could obtain, with the lightest weight we could obtain without exceeding an extra cost of one dollar per pound of weight reduction and with reasonable life expectancy of one million miles per vehicle. These units were built for us by Freightliner Corp. of Portland, Ore. Experience with a considerable number of these vehicles, built in 1940, which have now run between 750,000 and 900,000 miles has proven that, with but two or three exceptions, no premature failures occurred, even in highly stressed aluminum parts, so long as we followed sound practice in design, alloy, heat treat and assembly.

The Freightliner trucks complete with bodies, floor racks, tow chains, tire chains, fuel and spare parts and equipment ready for loading weigh 19,500 lbs. The average of 12 cab-over-engine trucks of other makes which have the same basic units, bodies and equipment is 21,600 lbs. The trailers average 12,800 ready for the road as compared to 13,650 for another make chassis with the same body.

### Weight-Reducing Parts

THESE trucks have 14 in. gauge, heat-treated alloy steel frames and high tensile steel cross members, cab framework and cab doors. In addition to the parts listed on first page the following items are made of aluminum: truck steps, running boards, dust skirts, headlamp brack-

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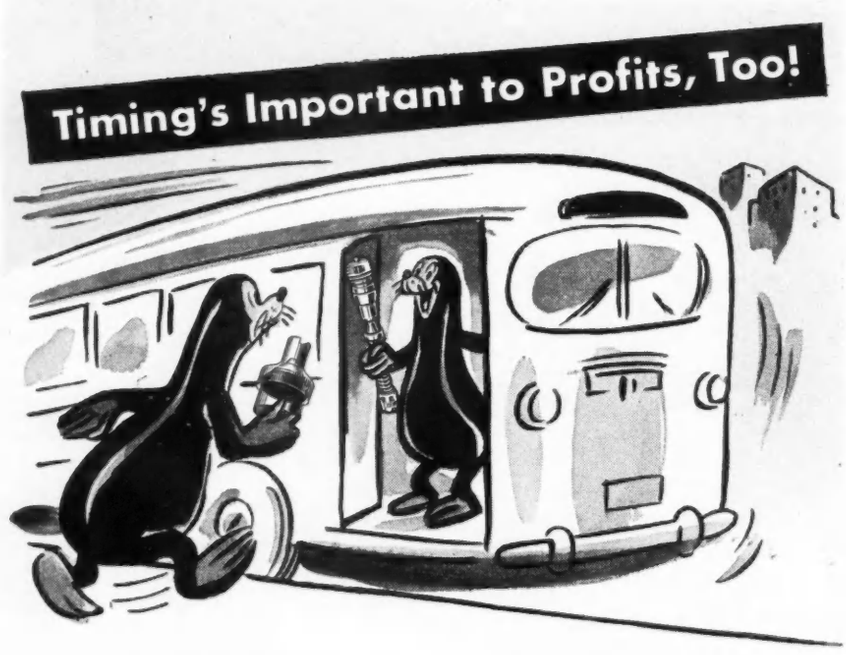


When roadside flats jam up carefully timed schedules, idle equipment and costly repairs mean profit-losses.

To insure safety and dependability on the road, tackle the problem of air-loss that cuts tire mileage. Screw down an air-sealing Schrader Valve Cap finger-tight *on every valve.* It guarantees an *air-tight* valve mouth up to 250 lbs. pressure and helps prevent damaging underinflation.

Replace valve cores before they are worn out. Because correct pressure *at all times* increases tire economy, check tires regularly with your own Schrader Gauge. Then watch them roll up profits with "on-time" service. See your regular supplier today for your needs. To get the best—always *specify* Schrader.

SCHRADER CAPS, CORES AND GAUGES MAKE TIRES LAST LONGER!

*Keep a Schrader Gauge in Every Vehicle*

**A. SCHRADER'S SON,** *Division of Scovill Manufacturing Company, Incorporated,* BROOKLYN 17, N. Y.
*World's Largest Manufacturer of Tire Valves ,Gauges and Accessories*

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WHEN you buy Fruehauf products and make use of Fruehauf service facilities, your entire transactions are directly with a permanent Factory Branch. You are not dealing with an individual, temporarily in the company's service by a franchise arrangement.

***Today,*** seventy-four Fruehauf Factory Branches — within easy reach across the nation — both *sell* and *serve.* They stock genuine Fruehauf parts and accessories.

***Each Fruehauf Branch*** — a "factory" in itself — is staffed with Trailer specialists and equipped with factory machinery to cut repair time and get your Trailers rolling faster. More of these Branches are being added to the list constantly.

***Experience has proved*** over the years that Fruehauf-serviced equipment delivers better performance — at lower maintenance cost — and in most cases increases the trade-in value of your Trailers.

***With Fruehauf sales*** nearly 4 times those of the nearest competitor, here is evidence that **it pays to serve!**

*World's Largest Builders of Truck-Trailers*

**FRUEHAUF TRAILER CO. • DETROIT 32**

*74 Factory Service Branches*

*SERVICE IS NOT A SIDELINE WITH FRUEHAUF!*

**FRUEHAUF *TRAILERS*** PLAIN HORSE SENSE — YOU CAN PULL FAR MORE THAN YOU CAN CARRY! *"Engineered Transportation"*

## Light Weight Metals

(CONTINUED FROM PAGE 124)

ets, cab floor castings, brake pedals, accelerator pedal, hoods, transmission cases, clutch housing, flywheel housing and axle torque brackets.

The trailers have aluminum spring hanger brackets, hubs, torque brackets, brake spiders, brake shoes, cam and diaphragm brackets, and hub caps. Wheel bearings, nut locks, oil seals, brake drums, brake shoes, lining, springs, cams, anchor pins, bearings, bushings, and other wearing parts were made interchangeable between truck drive axle and trailer axle in the interests of better maintenance and simpler parts supply.

At the same time a number of C-O-E four wheel tractors were obtained for use between Chicago and the Montana-North Dakota line, where shorter length limits are in effect. These were substantially the same as the six wheel trucks from bumper to rear of front transmission but had two speed drive axles with aluminum housings, spiders, shoes, hubs and cam and diaphragm brackets. They ride very well and have run about 900,000 miles each. They can legally pull 35 ft. semi-trailers in the east or if used in California, two 24 ft boxes within 60 ft. overall.

After the war, progress was resumed and substantial additional strides in weight reduction were made through use of weight-reducing materials. Today, the truck drive axles have aluminum housings, differential carriers, filler spouts, inspection covers, worm shaft oil seal retainers, worm shaft covers, and even some experimental aluminum brake drums, disc wheels and rims, in addition to the standard aluminum brake spider, cam and diaphragm bracket, hub and brake shoe. All frame cross members are of aluminum, as are the A-frame for the trailer hook and the front bumper and tow hook assembly. The fuel tank, fuel tank brackets, and fuel tank straps are aluminum. All these trucks are diesel powered. The air tank brackets are magnesium and their straps aluminum. The auxiliary transmission is supported in the front by an aluminum trunnion and cross member and in the rear by magnesium hanger brackets. An aluminum bracket holds the push-pull cables with which the transmission is shifted. These cables have proven most satisfactory. They have eliminated considerable linkage, including rods, arm, levers, brackets, and other parts, have reduced weight and have substantially reduced the amount of repair and maintenance required. The hand brake has aluminum mounting brackets in an aluminum cross mem-

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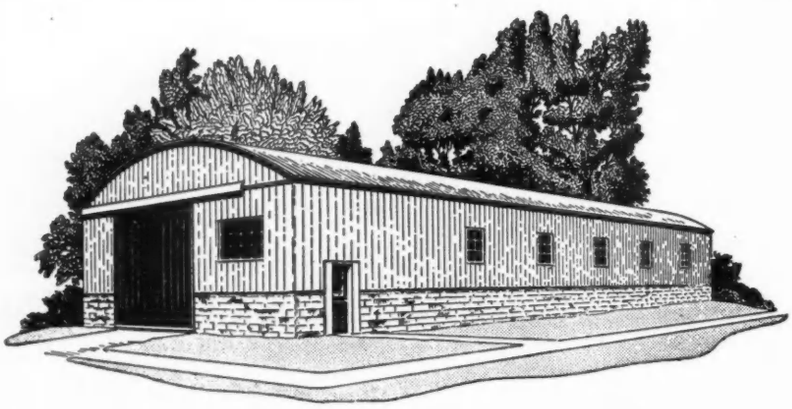


**PLAN THIS BUILDING TO FIT YOUR NEEDS—**

**WE WILL DELIVER IT IN ONE PACKAGE!**

Engineered units of standardized dimensions, prefabricated at the factory, now make it possible for you to plan in advance the type and size of structure you want.

**PIONEER**

**PRE-INSULATED STEEL BUILDINGS**

DESIGNED AND MANUFACTURED BY BLAW-KNOX CO.

Can be erected quickly with simple tools on any type of foundation. Weatherproof, vermin-proof, fire resistant and insulated for temperature control. Height, length, width, door and window arrangements to suit your requirements. All material, fastenings, glass and putty, included. Interior finished with aluminum paint. From your specifications we can quote a *delivered* price that you can bank on to the penny. *For full information and illustrations write today for Bulletin 2205.*

**SPECIFICATIONS**

**WALLS**
Welded structural frame covered with galvanized copper bearing steel sheets over ½" damp-proofed insulation board. Panels are furnished in 8 ft. widths solid; one and two window panels and entrance door panel. Heights — 8, 10 and 12 ft.

**ROOF**
Clear-span design, with widths up to 40 ft. in multiples of 4 ft. Structural steel bowstring trusses set on 8 ft. centers for solid support at low expense. Box-type purlins are set on 3 ft. centers on these trusses. Galvanized, copper bearing steel roof sheets and ½" insulation board placed over and fastened to purlins.

**DOORS**
Weather-stripped sliding doors in widths of 4, 6, 8 or 12 ft., with heights of 8, 10 or 12 ft. Track and hangers insure trouble-proof operation.

*IDEAL FOR*
COMMERCIAL GARAGES
MANUFACTURING
WAREHOUSES
AIRPORT BUILDINGS
ROADSIDE MARKETS
AND STORES
LIVE STOCK AND
DAIRY BARNS
POULTRY HOUSES
HAY AND GRAIN STORAGE
AND CURING PLANTS
TOBACCO STORAGE
AMUSEMENT PARKS, etc.

**THE PIONEER COMPANY**

1050 CENTURY BLDG. • PITTSBURGH 22, PA.


### Field Brake School

**Warner Electric Brake Mfg. Co. has established a traveling field service school in conjunction with the factory Sales & Service School which will train service men who find it inconvenient to come to the factory. The school is transported in a special truck containing a tractor-trailer mock-up which depicts the complete Warner braking system. The first classes were held in Tulsa, Okla. on March 15th.**

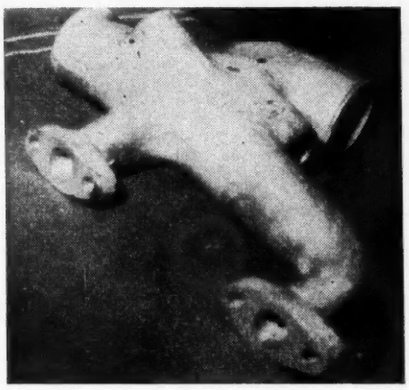
## Light Weight Metals

(CONTINUED FROM PAGE 126)

ber and is actuated by aluminum levers mounted on an aluminum cross shaft held in aluminum brackets. The brake is cable operated. Two-way oil seals and packed bearings are used in the cross shaft brackets to eliminate the necessity for lubrication. The number of points requiring lubrication on a truck and trailer is being reduced by more than fifty per cent.

In addition to the parts made of aluminum in 1940, these parts are now made of aluminum:

interchangeable spring pads
axle torque brackets for truck and trailer
engine
rear supports
steering gear brackets
cab
oil can holder
radiator steady bracket
all water connections
foot valve mounting bracket
relay and triple valve mounting brackets
clutch pedal pad
clutch operating lever
mounting bracket for the clutch air assist diaphragm
shift rods for the front transmission
toe board
dash and the brackets securing it to the steering column
timing gear covers
fan brackets
sheaves
compressor mounting brackets
generator mounting brackets
intake manifolds and other engine parts
racks for hanging meat
rear bumpers for trailers
serrated adjusting and spacer pads under springs
fire extinguisher mounting brackets
spare axle mounting brackets
gussets for cross members
document holders
every small cover plate or bracket
trailer
frames
crossmembers
upper and lower fifth wheel are now of aluminum
truck and trailer body door hinges
nearly all body structural members
skin
floor and lining.



*LEFT. Front water manifold of light weight metal.*

Body construction is complicated by necessity for providing insulation and refrigeration for holding frozen foods at 0° in 120° ambient. This makes it essential to eliminate virtually all metal to metal contact between inside and out, a difficult problem when low loading height and

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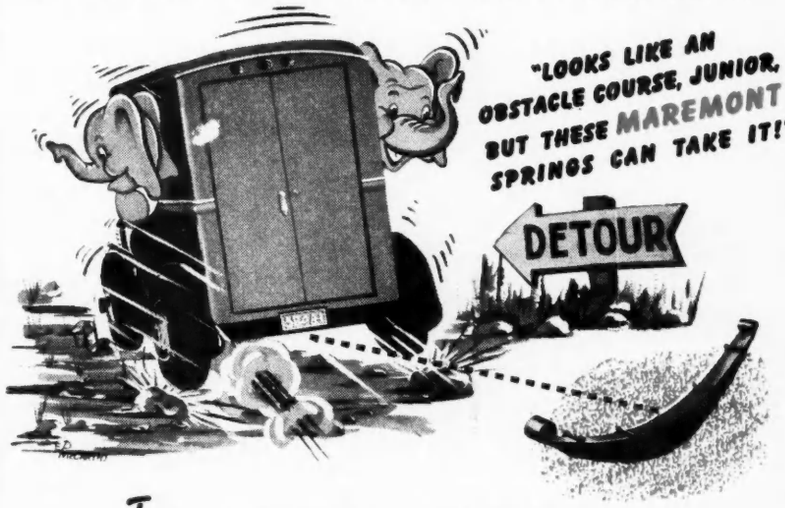
PREPARED TO TAKE PUNISHMENT




To stand the punishment of high-speed, heavy-duty, rough-road trucking, your springs will have to be *mighty* tough. That's why perfected Maremont springs so consistently fill your most exacting bill.

Many, many years of research and experimentation stand behind the spring that bears the Maremont name. The design . . . the select alloy steel . . . the fool-proof heat-treating . . . the rigorous pre-testing . . . *these are but a FEW* of the features which make the Maremont spring so resilient . . . so durable . . . and so perfectly prepared to take the punishment of fast, modern truck operation!

*See your Nearest Maremont Spring Service Station or Jobber for Springs, Helper Springs, Axle U-Bolts, etc.*

*Ask for Latest Spring Catalog 9720T.*

ALSO MANUFACTURERS OF MAREMONT MUFFLERS AND PIPES

SINCE 1877

MAREMONT SPRINGS

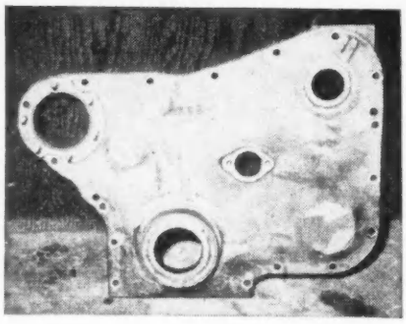
MAREMONT AUTOMOTIVE PRODUCTS, Inc.
1600 S. Ashland Ave. Chicago 8, Ill.
Factories at Chicago, Cicero and Harvey, Ill.

## Light Weight Metals

(CONTINUED FROM PAGE 129)

maximum loading space are so desirable.

Trailer axle centers, front axle beams, springs, trailer draw bars, steering gears, engine blocks, cylinder heads, and certain air brake equipment remain virtually the only opportunities for additional weight saving except for the possible use of additional magnesium parts to replace aluminum or use of forgings to replace castings.



*Timing gear cover has been made of aluminum.*

In the use of aluminum and magnesium, several basic principles are of particular importance.

1. In our experience it is unwise to attempt to use most standard iron or steel design, machining or assembly practices.

2. Long radii, sweeping curves, thick sections, avoidance of stress concentrations, shrink fits and protection from abrasion are musts.

3. Sharp fillets, notches, or rough handling must be avoided.

4. Use of an insulating material between dissimilar metals to prevent electrolytic action is absolutely imperative.

5. Bolt holes must be drilled a few thousandths undersize so that all attaching bolts are absolutely tight. Use of flat washers and lock nuts has been found to be the most satisfactory method.

6. Assembly of parts requiring shrink fit requires compliance with specific rules to avoid pulling the metal. Washers, wear plates and other parts to protect the softer metals from abrasion must always be provided and properly assembled.

7. Above all, everything touching aluminum or magnesium must be tight and must be kept tight.

We use Alcoa's Alumilastic to prevent electrolytic action. In fitting parts we find it necessary to use about .0015 in. shrink fit per inch. The aluminum part must be heated (boiling water is preferable if controlled heat is not available). The steel piece is dry iced and lubrication or white lead is applied. The parts are assembled quickly without pushing or tearing the metal. All bolts or studs are dry iced and assembled in the holes which are about 1005 in. undersize with the aluminum heated.

These things sound more difficult than they really are. With a thorough understanding of the reasons for these rules, the precautions become routine and very few errors occur. Our maintenance men have become so accustomed to the use of light metals that we can honestly say we have very little more difficulty with them than with heavier materials.

In the use of high tensile steel and alloy steel castings we have found that the most serious danger lies in a "tin-canning" effect or flutter if the

(TURN TO PAGE 132, PLEASE)

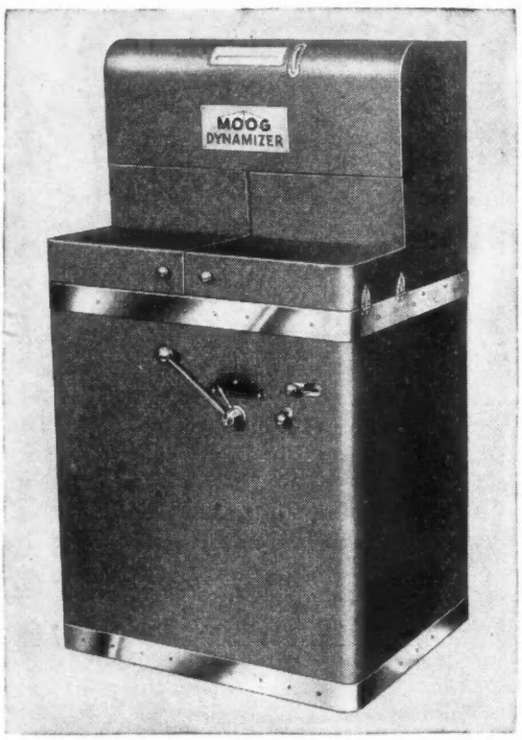

It's New—
REVOLUTIONARY-DYNAMIC!

THE MOOG DYNAMIZER

The Piston Expanding Method that restores collapsed pistons... all types.

Now you can be sure that the pistons you put back in worn motors, after a re-ring job, are restored to normal size to properly carry the rings and give Full Power results!

Moog Distributors have the Moog Dynamizer and can Dynamize collapsed pistons... bring them back to correct size... permanently... efficiently... economically. The Moog Piston Expanding Method is different and expands all types of pistons scientifically and accurately.




A demonstration will amaze and convince you. Write us today for name of nearest Moog Distributor.

MOOG PISTON RING CO.
Division: MOOG INDUSTRIES, INC. ST. LOUIS, MO.

MOOG
A GREAT NAME IN AUTOMOTIVE MAINTENANCE

*America's Fastest Growing Ring Line!*

To insure Full Power results in motor reconditioning install Moog X-Plus Piston Rings and have worn pistons restored with the Moog Dynamizer. That's the way to eliminate costly comebacks.

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# ...'cross town *or* nation

*4,000* **BONDED** *household carriers in the U. S. employ about 50,000 persons and did about 200-million dollars worth of moving business in 1947, based on tariff levels established in 1939. Equitable rates, to meet higher present-day costs, and relief from multiple state taxation, to permit uniform standards of service. are the industry's biggest needs.*

**"MOVING DAY"** is not the wearisome week it was. Today, moving . . . 'cross town or nation... is as simple as giving your old and new address over the telephone to a modern household goods carrier. Every detail of packing, moving, and unpacking in the new location may be left to trained and bonded experts.

Vastly improved standards have been achieved by the moving industry since one of the first White Trucks became the first motorized moving van. And in the years since, White has pioneered advances which have made long distance moving by truck practicable. It is another field in which White Super Power is the choice of the leaders... because correctly selected for the work they do, properly maintained and skilfully manned, Super Power Whites provide the utmost in dependability at lowest cost. The same applies to every truck-using business, as your White Representative will gladly explain.

White

**THE WHITE MOTOR COMPANY**
*Cleveland, Ohio, U. S. A.*
THE WHITE MOTOR COMPANY OF CANADA LIMITED
Factory at Montreal

**FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS**

## Light Weight Metals

(CONTINUED FROM PAGE 130)

section is reduced too far. This holds true even though the section is not highly stressed. With these materials we have used many all welded structures very successfully. Many brackets, frames, cabs, and other assemblies made of the high tensile steels have been in service substantially over one million miles.

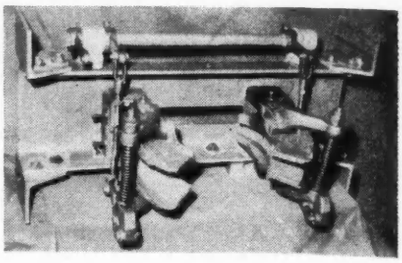
Welding is one of the most frequent causes of light material failures. It is particularly important to avoid welding heat treated materials, whether steel or aluminum, unless it is possible to anneal, weld with the proper rod and re-heat treat. In maintenance. this is usually impossible. Welding high tensile steel to mild steel or welding high tensile with the wrong rod will usually result in failure.

### Braking Problems

NO discussion of tare weight reduction would be complete without mention of the suspension and braking problems which result. Every time another piece is changed to reduce its weight the suspension problem is complicated by the increase in spread between sprung load empty and that fully loaded. The problem of brake control is accentuated by the increased variation between axle loads, empty and loaded. Both problems are accentuated by the differences in state laws which require variations in the loading on various axles or groups of axles, and thus increase the spread for which it is necessary to provide adequate suspension and brakes.

We have made much progress with the suspension problem using two stage springs of chrome-vanadium on both truck drive axles and trailer rear axle assemblies. On the trailer front axle we use a three stage spring. At this point, maximum sprung load is twelve times sprung load when the trailer is empty. Since we must prepare for operation over long distances at high speeds with loads at any point between these two extremes, it is extremely difficult to keep frequency and acceleration within reasonable limits. To date, no real progress has been made in the solution of the brake control problem. We must be prepared to control truck gross loads of 42,000 lbs. and trailer gross loads of 45,000 lbs., though the combination gross may not exceed 79,000 lbs. to 72,000 lbs., depending on the state. At the same time, it must be possible

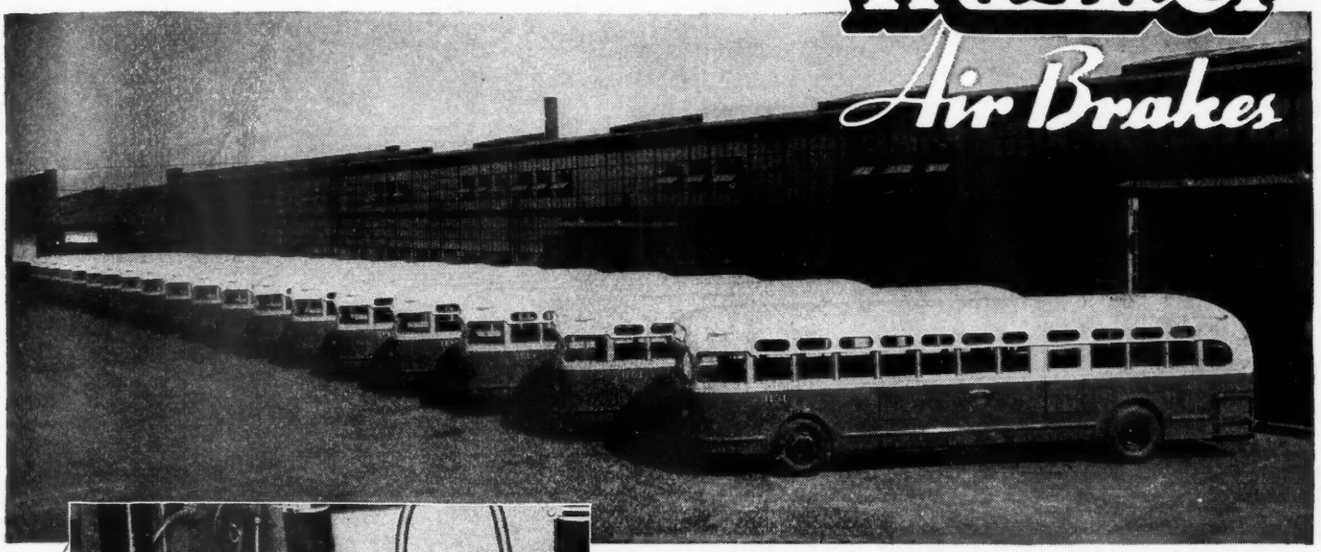
(TURN TO PAGE 134, PLEASE)

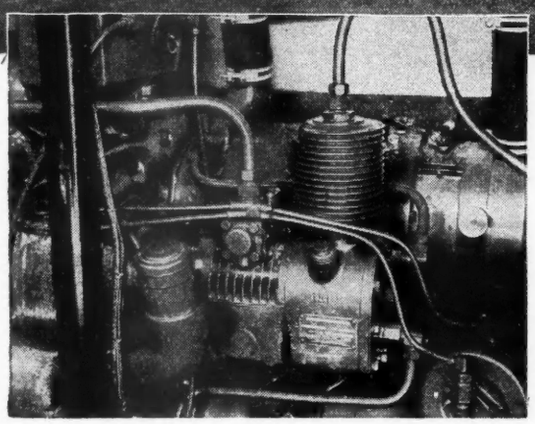


*The emergency brake cross member assembly has several parts made of light metal.*

*Even the oil pan has been changed to aluminum.*

# This NEW ADDITION to the St. Louis PUBLIC SERVICE COMPANY FLEET of Busses is EQUIPPED with Wagner Air Brakes





## The Rotary Air Compressor

The above illustration shows how the Rotary Air Compressor, the heart of the Wagner Air Brake System, mounts snugly in position. Wagner Air Brakes are the only Air Brakes that have this famous air compressor. Small, compact, it can be either flange mounted, as illustrated, or belt-driven direct from the engine.

## *They have helped establish an enviable Safety Record*

Busses equipped with Wagner Air Brakes have traveled over one hundred million miles in stop and go traffic for the St. Louis Public Service Company, establishing an enviable record for the fastest schedules throughout the entire country.

Because of high operating efficiency, outstanding economies, and thorough reliability, Wagner Air Brakes have contributed their part in this outstanding reputation for fast, safe transportation.

Not only bus operators, but thousands of truck, tractor and trailer operators who have installed Wagner Air Brakes on their vehicles report that they now haul their payloads faster, safer and more economically.

For complete description of Wagner Air Brakes—the air brakes with the Rotary Air Compressor, write for Bulletin KU-50B addressing Wagner Electric Corporation, 6470 Plymouth Avenue, St. Louis 14, Missouri.

***Send For Bulletin KU-50B***

Wagner Electric Corporation EST. WE 1891

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID
COMAX BRAKE LINING • AIR BRAKES • NOROL
TACHOGRAPHS • ELECTRICAL PRODUCTS

The System With The Rotary Compressor

K48-2

## Light Weight Metals

(CONTINUED FROM PAGE 132)

to operate the equipment safely when empty, when the truck is loaded and the trailer empty, when the rear half of the trailer is empty but the front half loaded, or at any combination of those and other possible conditions. Brakes of extremely high capacity are absolutely necessary to bring full loads down the long hills leading from the passes at reasonable speeds. Most of these hills range from 10 to 55 miles in length. Grades range from 6 to one small stretch of 12 per cent. Snow and ice are encountered on most of the passes for at least six months of the year. This problem combines with the lag in brake application and release, and the long minimum brake application to create a situation which is compensated for by the skill of experienced professional drivers but which should be corrected.

On the basis of our experience we can say with assurance that the use of weight-reducing materials for a great many parts of inter-city four wheel drive, six wheel trucks, six wheel full trailers, four wheel tractors and dual axle semi-trailers is practical; that substantial weight savings can be made by this method; that average net loads can be increased enough to make weight reduction profitable if space is provided for the additional load; that competent men can readily be trained to properly process, assemble and maintain parts made from weight-reducing materials; and that it is not at all unreasonable to expect life in excess of one million miles without excessive maintenance from vehicles using such materials for a substantial percentage of their entire tare weight—even when operated under the most severe climatic conditions over extremely mountainous terrain on high speed, long distance runs with gross loads varying up to the legal limits.

*Transmission case and clutch housing made of aluminum. Note reinforcing at stress points.*

### Discussion

E. P. GOHN, of the Atlantic Refining Co., presented a prepared discussion following Mr. Snead's paper, mentioning some of his own company's experiences in weight-reducing materials as applied to the petroleum-hauling industry.

With some reservations, he said, reducing dead weight with the purpose of increasing payload will always receive attention by fleet operators

(TURN TO PAGE 138, PLEASE)

FOR SAFER DRIVING
•
FOR GREATER CONVENIENCE

NORLIPP
*Improved*
TRUCK MIRRORS

The NEW ADJUSTABLE stop on the Norlipp Nos. 425 and 426 Truck Mirrors offers greater security of placement, yet wider flexibility in moving mirror for driving convenience. It holds mirror in exact position while driving, yet when truck is to be backed or driven into a narrow place, mirror and arm may be raised and then returned to former position without use of tools.

New cab mounting of one piece stamping adds durability to mirror. The diameter of telescopic arm has been increased to 5/8 inch. This larger diameter helps eliminate vibration. Water-proof construction—finished in durable baked enamel.

*See your jobber for complete details*

THE NORLIPP *Company*
5925 S. LOWE AVE., CHICAGO 21, ILL.

# USER REPORT:

## "Our first Warner Electric Brakes were purchased over twenty years ago and some of the original brakes are still in operation"

ROYLE R. FREER, President
Freer Motor Transfer Company, Inc.
Chicago, Ill.

© Fabian Bachrach

July 22, 1947

Warner Electric Brake Mfg. Co.
Beloit, Wisconsin

Gentlemen:

Forty pole and flat bed trailers in our fleet are equipped with Warner Electric Brakes. These trailers operate more than a million miles a year throughout Indiana, Illinois and the City of Chicago, hauling structural steel and steel from the various mills.

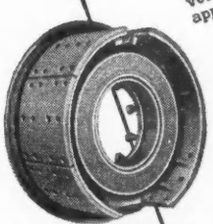
Our first Warner Electric Brakes were purchased over twenty years ago and some of these original brakes are still in operation. We are thoroughly convinced that the low original and maintenance cost cannot be surpassed by brakes of any other type.

Our service manager, Mr. John V. Lindholm, has been servicing Warner Electric Brakes on our equipment since the first pair was purchased. He is truly a Warner booster.

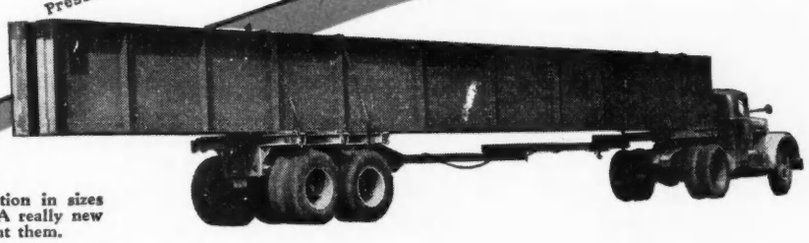
Our experience with your brakes has been very satisfactory and we felt that you would appreciate learning these facts.

Yours very truly,
FREER MOTOR TRANSFER COMPANY, INC.
Royle R. Freer
Royle R. Freer
President

RRF/lh



**NEW!**



Warner Electric Brakes of 2-shoe construction in sizes 16½" x 5", 16½" x 6", and 16½" x 7". A really new concept of super-stopping power. Ask about them.

Hauling structural steel on forty-pole and flat bed trailers over a million miles a year is record-breaking performance. Dependable, positive braking is a "must" on this gigantic operation. Warner Electric Brakes have been giving incomparable service on these huge trailers for over 20 years.

And for good reason! Because Warner Electric Brakes are *specifically engineered* to meet every trailer braking need. No other brakes equal their rugged construction, long lining life, positive control and dependable performance, even under the most severe conditions of heat, rain, snow, ice, and cold.

**CHECK YOUR BRAKE PERFORMANCE AND MAINTENANCE COSTS!**

If you want maximum safety plus economical performance, standardize on Warner Electric Brakes. Write for illustrated literature explaining their many advantages.

**WARNER ELECTRIC BRAKE MFG. CO.**
**BELOIT, WISCONSIN**

**WARNER**
**ELECTRIC BRAKES**

**SINCE 1927**

**A selected list of the latest literature—catalogs, pamphlets, charts—chosen to help fleetmen improve operation and maintenance**

## L151. Ignition Facts

A new booklet entitled "Facts About Ignition" has been made available to the fleet field in the interest of better ignition service. Featuring some new valuable facts on the design and maintenance of the contact points, this booklet will provide practical background to the mechanic.

The author states that not all the contact failures are found within the contacts themselves. He lists such causes of failures as high voltage, faulty condenser, improper ignition coil, filed tungsten, dirt and oxidation, etc. Illustrations with carefully prepared text show the reason for these failures.

In troubles originating with the points themselves, the author shows three types of surfaces and the reasons for their contribution to shortened contact life. He shows how contact point springs as well as conductivity of the metal determine the life and serviceability of the points.

Write L151 on the free postcard and add this maintenance guide to your files.

## L152. Cooling Manual

This new, 15-page Automotive Cooling System Manual has been prepared to improve vehicle performance and efficiency through the training of personnel in the care of one of the most neglected systems in the vehicle, the cooling system. The booklet is comprehensive in its approach to all phases of such maintenance. It can well serve as a text in the fleet shop, furnishing valuable technical background for the mechanic.

The introduction covers a general discussion of cooling systems, function, common failures, and service tips. A good deal of time is spent on the Origin of Insulating Deposits, with adequate steps provided for remedial measures.

Under Preventive Treatment the booklet takes up a list of 10 causes of rust and corrosion in the system, showing the reader just how to eliminate these common causes of costly vehicle operation. A detailed guide is then given for proper servicing of the system, a procedure which should be part of every shop's routine.

This booklet is available for the writing of L152 on the free postcard.

## L153. Battery Service

Here is a comprehensive battery service guide which can be used for reference and mechanic training in any fleet. This 24-page booklet represents the experience gained and the lessons learned in 35 years of work in the storage battery field by a well-known manufacturer. It has been compiled with an eye to helping users attain longer life and better service from the battery.

Among the valuable data presented are recommendations for the care of batteries in stock, information on charging, checking state of charge as well as an explanation of SAE ratings. Instructions on use of the hydrometer, correcting to temperature, and use of voltage testers are given special attention.

A special section shows how to locate starting troubles, while a table of accessory discharge rates will supply handy data for the fleetman. Of special interest to the fleet field will be the section on storage battery troubles. Common causes of troubles are presented in chart form together with recommended remedies. Troubles considered are: losing charge, lack of pep, shedding of active material in positive or negative plates, inability to completely form negative plates, etc.

A series of questions and answers summing up the information will provide worthwhile information to the shop. This section covers all phases of battery from construction and nomenclature to testing and servicing. This booklet is yours for the asking. Just write L153 on the free postcard for a copy.

## L154. Accident Report

Here is a practical Driver's Accident Report which should be in the glove compartment of every vehicle. If the vehicle should be involved in an accident, this report provides the driver with valuable help in securing maximum information on the spot. It is designed to enable the driver to put down all pertinent data quickly by filling in the sample questions asked and marking the diagram. It also provides him with witness statement blanks which can be easily filled out by any passengers or witnesses.

The complete report comes in a sealed manila envelope with clear instructions plainly printed on the outside. This strong envelope keeps the report in clean condition ready for use, indefinitely.

When an accident occurs, the driver breaks open this sealed envelope. Inside is a four-page copyrighted folder and five witness statements. The folder is printed on Bristol so it can be easily filled out while held in the hand. This folder covers all pertinent data regarding the accident. It leads the driver through a logical sequence of questions which are broken down into simple groups such as time and place, weather conditions, injuries, how accident happened and other data. It provides a diagram to show where and how accident occurred. Plenty of space is provided in the folder for answering the questions. When filled out, this Accident Report contains all information necessary to make a complete insurance report.

Be sure to send in for a free sample Driver's Accident Report. It's yours for the asking. Just write L154 on the postcard.

## L155. Diesel Booklet

A new 58-page handbook-size booklet entitled, "The Lanova Combustion System for Diesels" gives an up-to-date description of the Lanova Combustion System, what it is, and how it functions. Throughout the text, stress is placed on the importance of proper combustion in economical diesel operation.

Included is such elementary material as is considered necessary to give the reader a clear understanding of the subject. Points that are discussed are comparisons between types of fuels, differences between internal and external combustion engines, and gasoline and diesel engines, as well as a full description of how a diesel operates.

In presenting the subject of combustion the booklet illustrates and discusses representative types of diesel combustion systems. A useful appendix of engineering tables and data is also included.

Written in non-technical language and profusely illustrated, this booklet provides a valuable manual on diesel engine performance for engineers and non-engineers alike. Copies are supplied on request through the free postcard. Write L155 on the card for a copy.

# NEW PRODUCTS

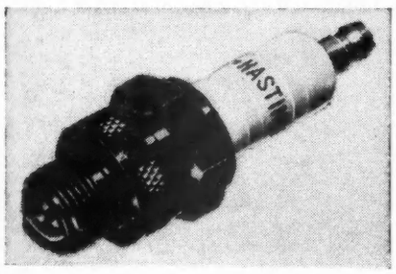
**USE POSTCARD—NO STAMP NEEDED**

**The newest in replacement parts, accessories, shop equipment, supplies—illustrated and described in brief for the fleetman**

## P1. Hastings Spark Plug

A new Aero-type spark plug has been announced by the Hastings Mfg. Co., Hastings, Mich. The insulator is the same as that used in plugs for fighters and superforts of World War II. These plugs are said to be less subject to pre-ignition and fouling. Electrode erosion is minimized.

Because of the ability of the Hastings plug to transfer more heat, it operates over a wider heat range, and with efficient ignition, the company stated. One plug will handle the temperature ranges previously requiring several plugs. As a result only



fifteen Hastings plugs are needed to give complete service for all passenger cars, trucks, tractors and buses; also marine and industrial applications.

***Use Free Postcard for More Details.***

## P2. Con-Rod Tool

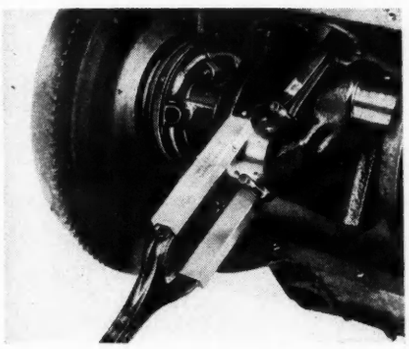
A definite aid in the removal and installation of Ford V-8 connecting rod assemblies, preventing damage to the crankshaft or bearing, is offered in a new tool announced by Federal-Mogul Service, Coldwater, Mich.

The tool consists of two rectangular metal pieces approximately 5 in. long. Each piece has a threaded hole in one end and a tapered clearance hole in the other.

The threaded ends are screwed into an old V-8 connecting rod until the face of each is parallel to the rod bore, but clearing it. The old rod serves as a handle.

This assembly straddles the engine crankpin, and is inserted into the blade half of the engine connecting rod. By pushing on the handle, the piston and rod assembly is forced out through the top of the cylinder.

For replacement installations, cotter pins



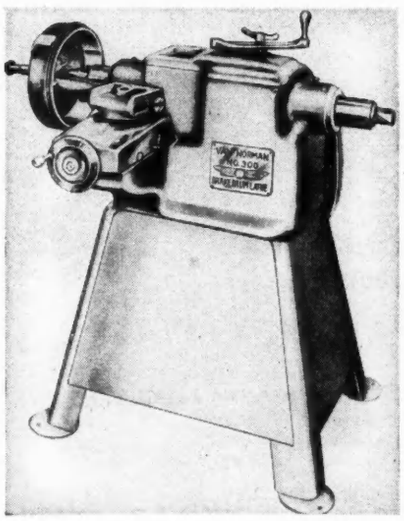
are inserted in the holes provided in the rod guide tool, registering with the cotter pin holes in the rod studs. The piston and rod assembly is pulled down into its position of seating on the new bearing.

The new Federal-Mogul rod guide tool permits one-man rod assembly installation, protects bearing and crankshaft from damage and protects mechanics' fingers from being pinched.

***Use Free Postcard for More Details.***

## P3. Brake Drum Lathe

A new brake drum lathe has been placed on the market by the Van Norman Co., Springfield, Mass.



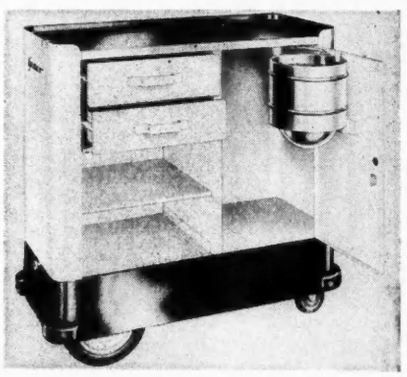
This new machine has many of the same features as the Van Norman No. 303 Heavy-Duty Lathe, including the 3 in. hollow spindle which not only revolves but slides in and out. It has a large assortment of equipment, same as No. 303, including 11/16 in. and 1 in. mandrels with cones and adapters.

Among other features is a 5 in. travel which makes it possible to turn a 5 in. drum . . . 60 sq. in. of oilette bearings . . . large 7½ in. worm gear drive . . . speeds of 50 and 75 rpm. Grinder attachment is available and recommended.

***Use Free Postcard for More Details.***

## P4. Graco Porto-Bench

A new, portable work bench has just been released by Gray Co., Inc., of Minneapolis. The Graco Porto-Bench is a tool-carrying,



work and repair bench for service stations and garages. It is a work-saving work center on wheels that moves right up to the car or truck being serviced.

A vise can easily be attached to the bench top to provide a complete, mobile, repair department. Small and compact, the Porto-Bench is 35 in. high, 38 in. long, and 24 in. wide.

Features of the Bench are: an extra heavy, steel, work surface of 4 sq. ft.; a detachable, parts washer; ample space for tools; drawers (which can be locked) for adapters, airline couplers, gauges, spare parts, and other service necessities.

***Use Free Postcard for More Details.***

(TURN TO PAGE 202, PLEASE)

## Light Weight Metals

(CONTINUED FROM PAGE 134)

particularly those in the business for profit. The term "reservation" is used because some factors must be assayed in the overall picture which cannot be overlooked or neglected, such as, strength of materials, resistance to impact, ease of maintenance and repairs, and last but not least, usability of the weight reduction translated into pay load.

Increasing payload through means of weight reducing materials has its greatest impact on units which are operating at legal gross weight limits. In such cases, increasing the payload without exceeding the legal limits has real significance in revenue and/or utility factor of the unit.

Maintenance and repairs of light weight materials must also be considered when compared to other standard heavier materials, the latter dealing with those with which most shops have had considerable experience in handling.

The following remarks will concern the use of light weight materials for petroleum cargo tank construction and the economics involved within such a study. In the early thirties, the Atlantic Refining Company ventured forth with a program of the utilization of aluminum cargo tanks to take advantage of the lightness of the metal for increased gallons pay load.

At this time, it was also the consensus of opinion that the existing method of mounting tanks on chassis, namely, the sill type mounting, left room for improvement, particularly along the lines of neutralizing stresses. The result was a design by our engineering group utilizing the principle of three-point suspension in conjunction with rubber mounting blocks. By its design, stresses imposed upon the tank were to a large degree relieved, so that the function of the tank shell was confined to holding the petroleum cargo, with a minimum of strain, stresses and shock loading to be absorbed by it.

The operating record on aluminum tanks placed in service in 1932 justified the point in question. These tanks, now over 15 years old, have been on chasses which have accumulated an average of 250,000 miles each. Our plans this year call for the continued use of these tanks to be placed on new chassis which are contemplated for purchase. Another group of 17 aluminum tanks placed in service in 1937 are as good today as when installed. These were higher annual mileage trucks, in other words, about 275,000 miles average per unit for approximately one-half the time period of the first mentioned group.

We have recently placed in service some new units with aluminum tanks. These tanks on a two axle truck have a capacity of approximately 2500 gal. and the use of the light weight tank has resulted in an increase in payload of about 300 gal. You might be interested in some typical weight comparisons of large tanks (includes mountings, meters, piping, hose reel).

| Type Tank | Capacity | Per Gal. of Cargo Cap. |
|---|---|---|
| Steel | 1000 gal. | 3.087 lb. |
| Steel | 1529 gal. | 2.85 lb. |
| Steel | 2875 gal. | 2.29 lb. |
| Frameless Steel | 4508 gal. | 2.35 lb. |
| Frameless Steel | 5923 gal. | 2.33 lb. |
| Aluminum | 2190 gal. | 1.65 lb. |
| Aluminum | 3125 gal. | 1.57 lb. |

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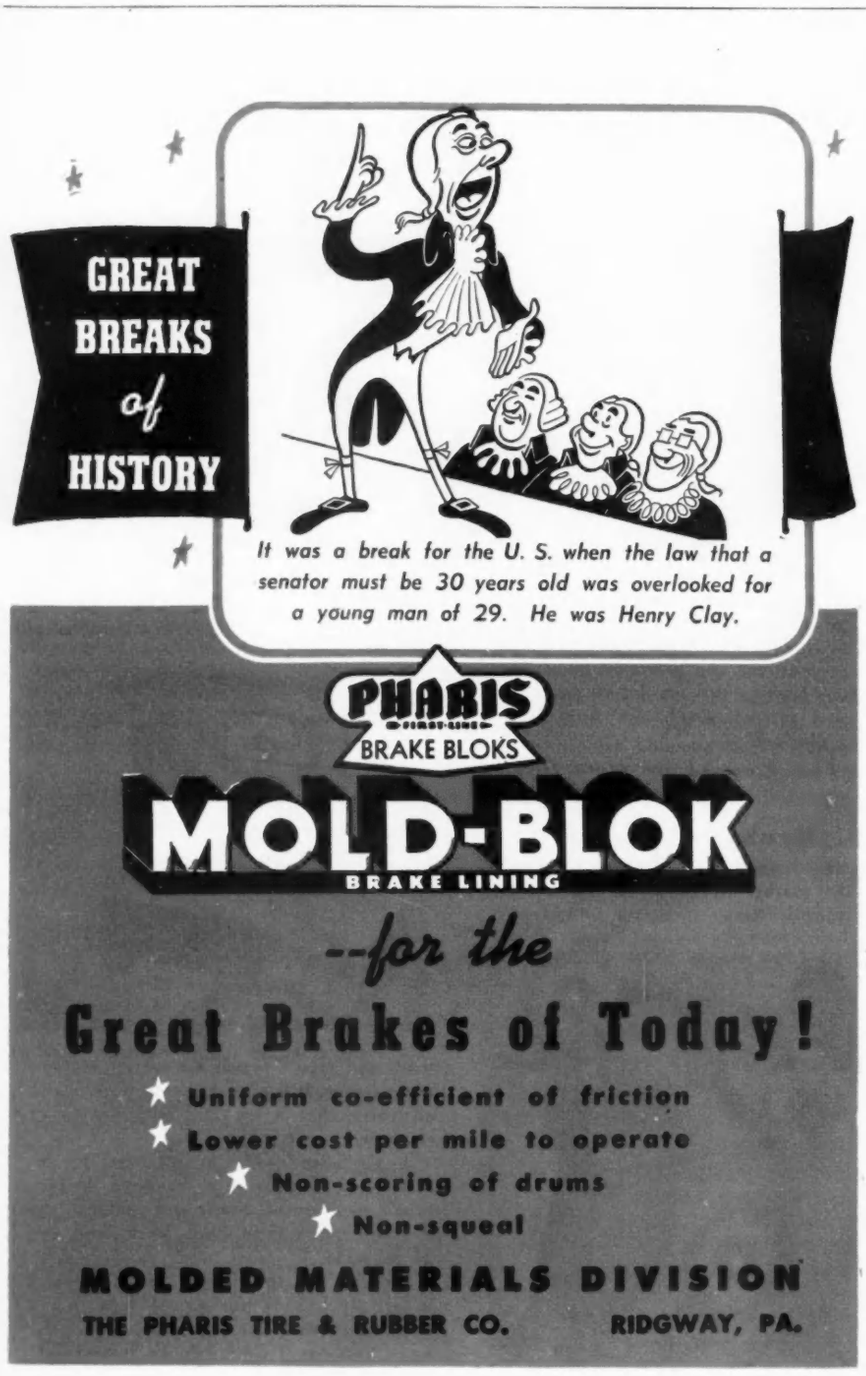
GREAT BREAKS of HISTORY
It was a break for the U. S. when the law that a senator must be 30 years old was overlooked for a young man of 29. He was Henry Clay.
PHARIS
BRAKE BLOKS
MOLD-BLOK
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Great Brakes of Today!
★ Uniform co-efficient of friction
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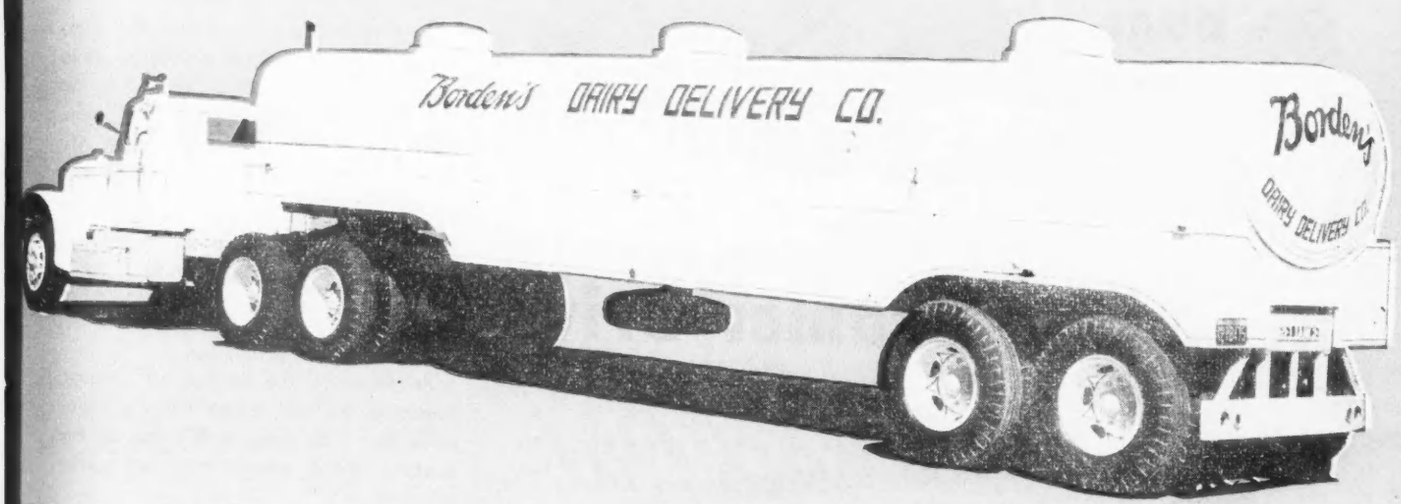
Reliance

HEAVY-DUTY TRAILERS

USE

# SHULER AXLES




THERE ARE NO BETTER AXLES, AT ANY PRICE!

SHULER AXLE COMPANY, Inc.
Louisville, Kentucky

Since 1915, Manufacturers of: One-Piece Tubular and Square Trailer Axles, Front Axles, Machinery Trailer Axles, Machinery Front Axles, Front-Steer Trailing Axles, Heavy-Duty Brakes (Mechanical, Vacuum and Air), Hones, Trailer Axles, Miscellaneous Forgings for Heavy-Duty Trucks and Trailers.

DETROIT OFFICE: 8424 Woodward Ave.
EXPORT DIVISION: 38 Pearl St., New York
WEST COAST WAREHOUSE: 1280 Forty-Fifth St., Oakland

## Light Weight Metals

(CONTINUED FROM PAGE 138)

The aluminum 3125 gal. tank was installed on the same type chassis as the 2875 gal. steel tank, both units gave a GVW of about 39,000 lb. which results in 250 gal. extra payload for the same gross weight.

The economics involved in petroleum tank truck transportation comparing aluminum with steel tanks could be summarized as follows:

(1) In local delivery service comparing the 2875 gal. unit with the 3125 gal. unit, a resultant increase of 250 gal. payload, and assuming 25,000 miles per year, our studies indicate a savings of about $441.00 per year in operation costs.

(2) In over-the-road service, where the maximum size unit is employed, assuming 60,000 miles per year and the same increase in payload of 250 gals., our studies indicate a savings of about $1140.00 per year in operating costs.

It appears that the incentive for weight reduction is more favorable to the over-the-road type of operation. I note that Jack Snead refers to a premium payment of one dollar per pound of weight saved which is in line with our indicated savings of $1140 for the additional payload of 250 gal. of gasoline in the over-the-road type of operation.

RALPH WERNER, of United Parcel Service, stated that his organization had experimented with aluminum frames and components for a period of 9 years. Some of his vehicles so modified had traveled as much as 400,000 miles. He warned that weight reduction in this manner has as its price careful design, analysis and finally good vehicle maintenance.

He said that a pound of weight saved is worth $4.50 to his organization. This considers savings in fuel, license, maintenance as well as larger available payload. He said that United Parcel realized a saving of one cent times the daily mileage with vehicles using light weight materials.

In converting UP vehicles Mr. Werner mentioned several problems peculiar to a delivery fleet. One was the matter of saving space through redesign of the driver's compartment. By changing the steering wheel angle, redesigning the seat and relocating the controls, he had developed a compartment saving 8 in. of cargo space, a practice which had resulted in larger payloads with adequate driver comfort.

In locating the engine off center, however, he had encountered serious difficulty with push-pull controls for brakes, clutch, accelerator and transmission.

He concluded that springs offer one of the greatest opportunities for weight saving in future experimentation, but warned that much research was still to be done and possibly a complete redesign of springs was necessary to accomplish the desired results.

M. C. HORINE, of Mack Mfg. Co., projected a note of caution into the practice of going too far in use of weight reducing materials. He warned that it is dangerous to generalize on specialized service such as was characteristic of Consolidated Freightways

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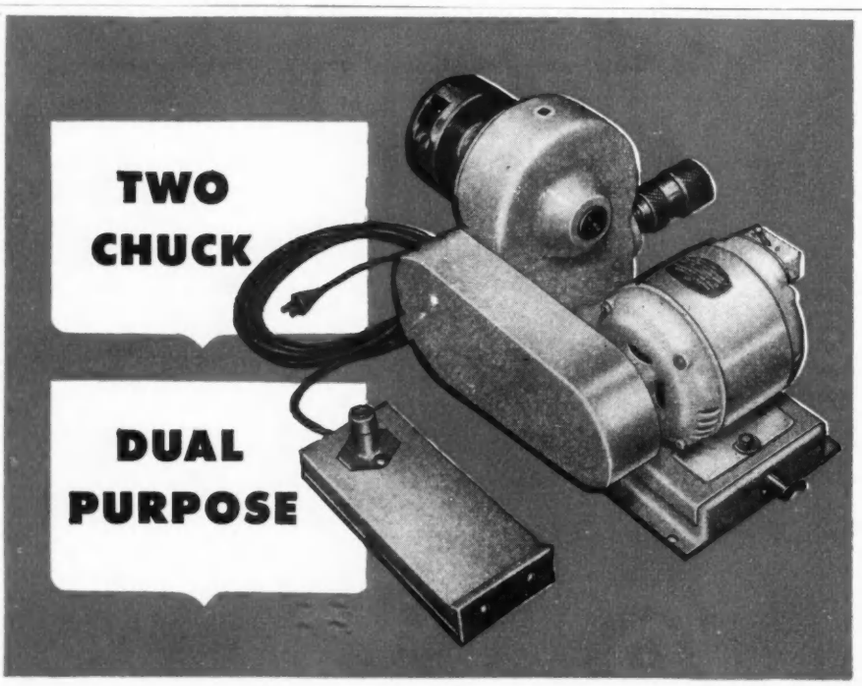



**Hone *and* Reamer Drive**

THAT'S A KO KNOCK-OUT

*Knock-Out*"

**Has 5" two jaw universal chuck (capacity 1⅝" round) with three speeds to handle ALL reaming jobs and ⅝" "K-O" Keyless Drill Chuck with three high speeds for honing, lapping, polishing, etc. Equipped with hand and foot switches, "V" belt drive, ⅓ H. P. motor, available in 20 to 1 or 40 to 1 gear ratio. A compact unit that will find many uses in any shop.**

**See your "Knock-Out" Jobber or mail the coupon TODAY for illustrated bulletin**

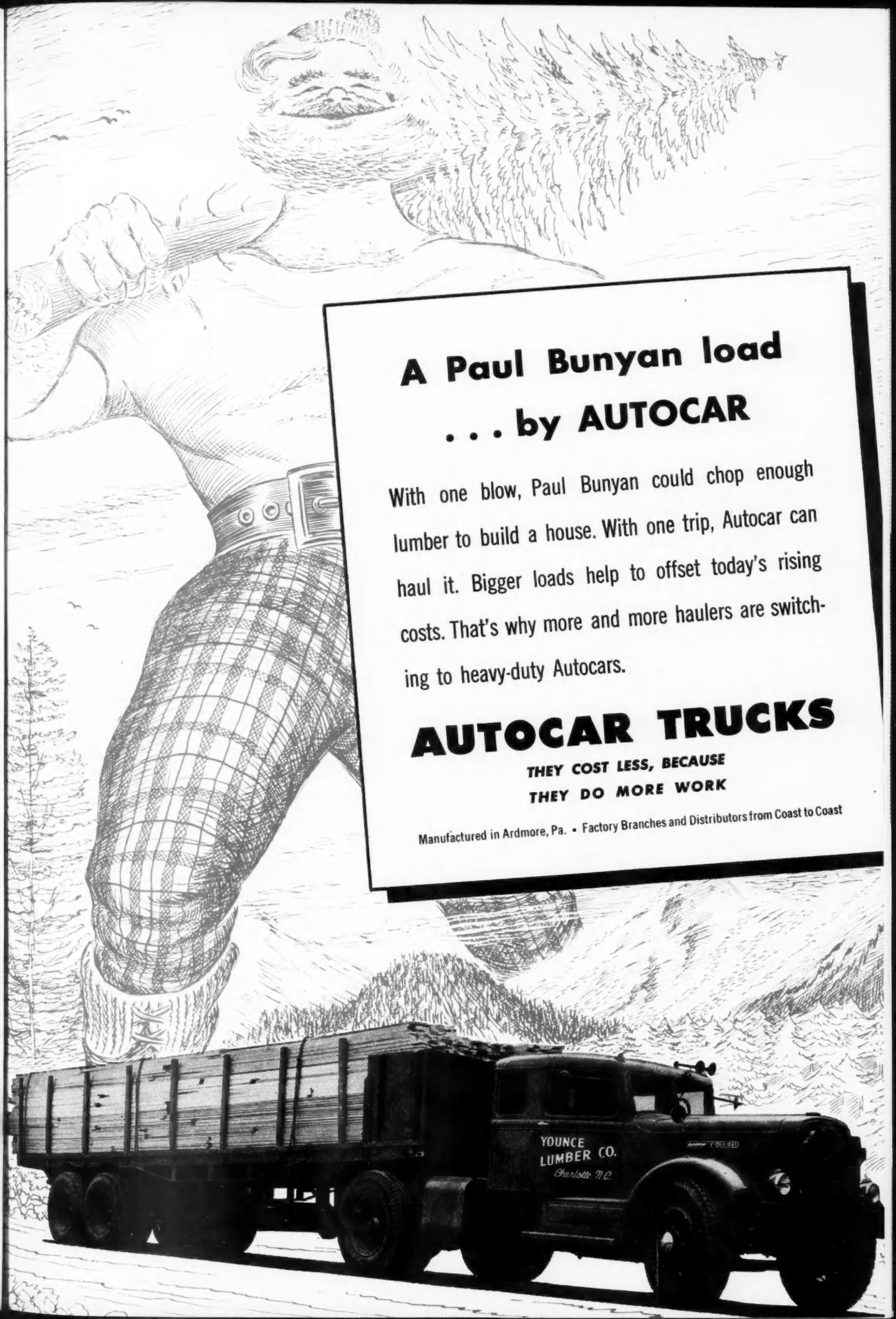
K.O.LEE COMPANY
ABERDEEN, SO. DAK.

K. O. LEE COMPANY
1103 First Avenue S. E., Aberdeen, South Dakota
Please send us the illustrated bulletin on "Knock-Out" Hone and Reamer Drives.

*Name*.....

*Address*.....

*City*..... *State*.....


A Paul Bunyan load
. . . by AUTOCAR
With one blow, Paul Bunyan could chop enough lumber to build a house. With one trip, Autocar can haul it. Bigger loads help to offset today's rising costs. That's why more and more haulers are switching to heavy-duty Autocars.
AUTOCAR TRUCKS
THEY COST LESS, BECAUSE
THEY DO MORE WORK
Manufactured in Ardmore, Pa. • Factory Branches and Distributors from Coast to Coast
YOUNCE
LUMBER CO.
Charlotte, N.C.

## Light Weight Metals

(CONTINUED FROM PAGE 140)

operation. From the manufacturer's viewpoint, he said, use of light weight materials is prohibitive due to increase in cost. He predicted that users would not pay such premiums for a lighter vehicle. And he said markets would not justify a light weight metal vehicle due to the fact that most operators do not haul up to the legal limits.

He mentioned that Consolidated modifications had not met styling requirements which are necessary in new trucks. He suggested that much of Consolidated's weight saving could and evidently had been obtained by simplifying design and useless streamlining.

WARREN A. TAUSSIG, of Burlington Truck Lines, Inc., took exception to Mr. Horine's statement that Consolidated Freightway operation was "specialized". He said that a saving of 2100 lb. per vehicle was well worth a substantial increase in initial cost of the unit and that any over the road operator would be willing to pay the difference if he could realize the savings in gasoline, license, maintenance and carry larger payloads with lighter equipment. He criticized manufacturers for not doing more research and experimentation and expressed the hope that future developments would bring about more cooperation in this field.

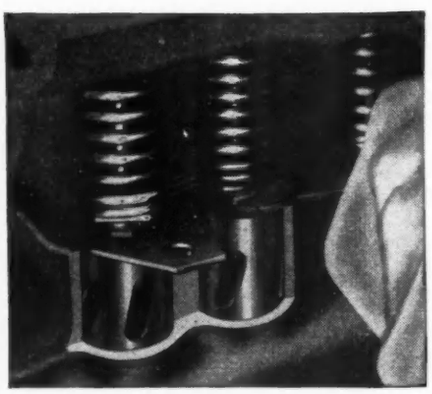
*END*

*(Please resume your reading on P. 136)*


V-8 VALVE JOBS MADE EASY!

WITH Johnson ADJUSTABLE TAPPETS

Do the job right! Install Johnson Adjustable Tappets in Ford and Mercury V-8's (85-100 HP engines). No expensive shop equipment is needed. Installations are made in half the ordinary time and without the task of fitting valves. Special spanners are included with each set of tappets, leaving both hands free for quicker and more accurate adjustments. Each tappet maintains its setting and gives many thousands of miles of superior engine performance.



The millions of Johnson Tappets in use today are giving dependable service and providing smooth, quiet engine performance.

You'll find that you will make larger profits and gain more satisfied customers when you install Johnson Adjustable Tappets.

AVAILABLE AT N.A.P.A. WAREHOUSES AND JOBBERS

Johnson PRODUCTS INC.
MUSKEGON, MICHIGAN
"Tappets Are Our Business"


## Apprentice Training

(CONTINUED FROM PAGE 121)

ous maintenance shops while serving in the armed forces. In some instances these men had additional civilian experience prior to the war which resulted in their being even better qualified. Thus, we established our G.I. Apprentice Mechanic Training Program.

In order to officially establish ourselves as an approved G.I. Training School, it was necessary to comply with the regulations set forth under the Servicemen's Readjustment Act of 1944, Public Law Number 346 and Amendments. This was accomplished through submitting the proper forms, Proposal For On-The-Job Training (including Apprenticeship) In Trade and Industrial Occupations, to the Board for Vocational Education in the State of Illinois.

This was set up as a four-year program with the following periods and corresponding rates of pay.

| *Period* | *Time-Months* | *Rate of pay* |
|---|---|---|
| 1st | 6 months | $ .95 per hr. |
| 2nd | 6 months | $1.00 per hr. |
| 3rd | 6 months | $1.05 per hr. |
| 4th | 6 months | $1.10 per hr. |
| 5th | 6 months | $1.20 per hr. |
| 6th | 6 months | $1.37 per hr. |
| 7th | 6 months | $1.45 per hr. |
| 8th | 6 months | $1.60 per hr. |

The factors which served as the basis for determining in which pay period each apprentice would start were previous experience, training and the score obtained on our initial qualification tests. Good civilian experience and training was considered as well as valuable military training. Most of the apprentices were started in the fifth period or the first half of

(TURN TO PAGE 144, PLEASE)

Fleet operators all over the country continue to specify Edwards Semi-Trailers because they have proved a profitable investment in haulage equipment. And it's no wonder, for Edwards trailers are the result of tried and proved engineering principles . . . the result of years of trailer manufacturing experience . . . the result of never-ending Edwards research.

The corrugated models illustrated are continuously welded to top and bottom side rails. High tensile steel frame and body cross members assure durability for even the most gruelling types of work.

Edwards features include Timken Bearings and Timken Axles—13, 18, 21, or 25 thousand pound rated capacity at wheels; —vacuum or air operated brakes—16½ x 5, 16½ x 6, 16½ x 7, or 18 x 7;—extra heavy duty vertical type drop supports—single or double speeds and many others that make Edwards Semi-Trailers easy to service in any section of the country.

A limited number of territories available to selected dealers. Write on letterhead for complete details.

**CORRUGATED, PANEL, OPEN-TOP, PLATFORM AND ALUMINUM TRAILERS IN MANY STYLES, OR TO YOUR SPECIFICATIONS**

# EDWARDS

**EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA**

EDWARDS IRON WORKS, INC.
South Bend, Indiana
Rush data on ( ) Edwards Trailers
( ) Edwards Dealer Franchise
Name_____
Address_____

## Apprentice Training

(CONTINUED FROM PAGE 142)

the third year. Some started in the sixth period, the second half of the third year. Only a very few especially well-qualified men were allowed to start in the 7th period or the 1st half of the fourth year.

Since all these men earned over the maximum allowed for additional compensation from the Government, the only direct benefit they received from the Government was a set of tools.

THE WILLETT COMPANY
APPRENTICE MECHANIC TRAINING SCHEDULE

PERIOD I
FROM AUG. 19
TO SEPT. 28, 1946

DATE AUG. 10 1946

PRODUCTIVE WORK ASSIGNMENTS

| MAIN GARAGE | | | | | U.S. STEEL | 106TH. STREET |
|---|---|---|---|---|---|---|
| SHOP DAYS | P.M.S. DAYS | SHOP NITES | P.M.S. NITES | WHEELS NITES | | |
| | | | | | | |

*FIG. 6. The apprentice Training Schedule covering each 6-week period is made up from master control schedule to inform men of assignments.*

### Initial Qualification Tests

IN our efforts to obtain the best men available we used various methods of selection and aptitude determination.

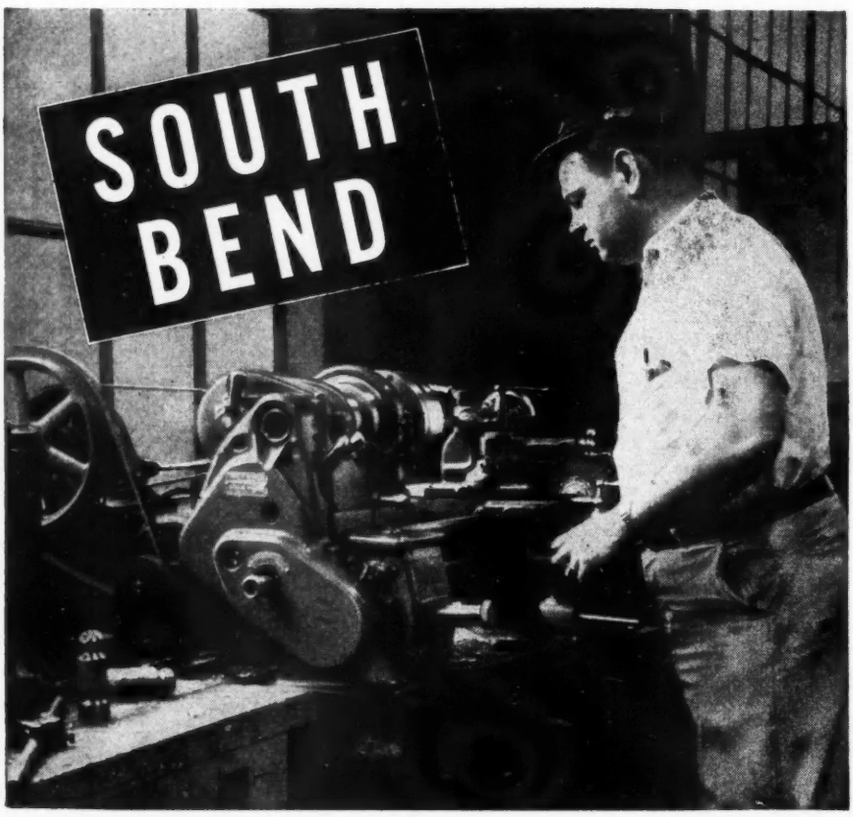
We were already giving tests to drivers which proved successful so we developed the following series of tests for mechanics. These tests are administered in our schoolroom, Fig. 1, which is especially equipped for that purpose.

The first group of tests, consisting of the visual acuity, depth perception, field of vision, driver's reaction, distance judgment and the Siebrecht Attitude Scale, are given to determine whether or not the apprentice is qualified to go out on road calls or to perform any other duty requiring that he drive.

The most important tests for qualification determination for mechanics, in our experience, are the Scott I. Q., the O'Conner Block and the Purdue Mechanical Adaptability tests.

The Scott I. Q. Test, is so designed that it can be given to individuals or groups. It involves arithmetical reasoning, quickness of thinking, quickness and accuracy of judgment, clearness of perception, degree of comprehension, and ability to follow instructions. The time limits are so short that the most alert person cannot make a perfect score, while on the other hand, the test is easy enough to permit the less mentally alert to make an appreciable score. The test is as free as possible from the influence of

(TURN TO PAGE 147, PLEASE)

"HOW TO RUN A LATHE"
This valuable book will show you how easy it is to operate South Bend Lathes. It will suggest many ways to solve service problems and cut maintenance costs. Price 25c, postpaid, in U. S. coin or stamps.

AN ESSENTIAL TOOL IN SERVICE-REPAIR SHOPS

Easy to operate, versatile, economical to own and to use, a South Bend Precision Lathe will increase shop profits for you by doing the dozens of precision machining jobs which are required in automotive maintenance and repair work. Turning, boring, drilling, reaming, tapping, threading, refacing valves, truing, and testing are only a few of the many jobs which this versatile machine tool handles easily and quickly. Attachments are available for grinding, milling, keyway cutting, and other operations.

South Bend Precision Lathes are made with 9", 10", 13", 14½", and 16" swings, and bed lengths up to 12'. Mention size lathe in which you are interested when writing for free, illustrated catalog which contains detailed specifications.

Lathe Builders Since 1906

SOUTH BEND LATHE WORKS
445 EAST MADISON STREET SOUTH BEND 22, INDIANA

## Apprentice Training

(CONTINUED FROM PAGE 144)

formal schooling and no difficult or unusual words are used. To void the ridiculous or absurd, the test does not contain any statements or problems calling for knowledge of an unusual or strange nature. The only standard with which we had to start was a minimum of 35 previously established for stenographers. This standard is our absolute minimum for apprentices. We've had the most favorable results with men having an average of 40 or more. Out of 622 people we hired during the war, the average was 43 on this test.

The O'Conner Block Test, is one previously designed to determine one's ability to take things apart logically, to catalog the various constituent parts mentally, and to put them back together again in the shortest time possible. View of an applicant taking this test is shown in Fig. 2. If an applicant requires more than 7 min. on this test, we don't feel he is particularly adapted for this type of work. The average time on this test is about 4 min.

The Purdue mechanical adaptability test, is designed to aid in identifying men or boys who are mechanically inclined and who, therefore, are most likely to succeed on jobs or in training programs calling for mechanical interests and abilities. The average score our apprentices made on this test was 70 per cent.

The results of these tests are recorded on a score form which becomes a part of our permanent record.

After having satisfactorily passed the above tests, each applicant undergoes a good general physical examination to determine his capability to handle the type of work to which he will be subjected. This examination is based on the standards as set forth by the Interstate Commerce Commission. The results are recorded on the following forms: personal and medical history; Keystone visual survey test and the physicians certificate.

When all these tests have been satisfactorily passed, the applicant is interviewed by the director of maintenance, who finally determines whether or not he is to be hired.

### Correlation Studies

THE correlation studies made between the initial qualification tests (Scott I. Q., and Purdue Mechanical Adaptability tests) and the performance grades show that those who did well on the initial tests received reasonably high grades on their performance examination as illustrated in Fig. 3. In our opinion this proves quite conclusively that the initial qualification tests are definitely an aid to management in the selection of the right man for the job.

### Training Program

THE On-The-Job Training Program in conjunction with related technical instruction required a wide variety of facilities, most of which we were able to provide in our own operation.

Our training facilities consist of a school room, a main repair shop, a chemical laboratory, a diesel repair and maintenance shop and a motor coach repair and maintenance shop.

The related technical material is

(TURN TO PAGE 148, PLEASE)


# End Vapor-Lock and Fuel Pump Failure...with a

- Ends vapor-lock and fuel pump failure
- Operates only when needed
- Helps maintain tough schedules
- Insures quick starts in any weather
- Delivers a minimum of 15 gallons of gas per hour
- Reduces operating costs
- No fire hazard
- Available for 6 or 12 volt installations



**110 DUAL PUMP**

**Dual fuel pump installations are recommended...**

*Whenever* gasoline mileage is less than 5 or 6 miles per gallon.

*Whenever* gasoline consumption approaches 15 gallons per hour.

*Whenever* the total fuel line is over 20 feet long.

Each pump in a dual unit may be wired to a separate switch. When only one of the pumps is being used, the other acts as a booster and reserve pump, increasing the fuel delivery of the active pump as much as 30%.

**STEWART-WARNER CORPORATION**
*Instrument Division*
**1876 Diversey Parkway, Chicago 14, Illinois**

## Apprentice Training

(CONTINUED FROM PAGE 147)

taught through holding regularly scheduled weekly classroom sessions throughout each year with the exception of July and August. This material is presented by outside technical authorities or by our own skilled experts through lectures, movies, demonstrations, group performance and examinations. We attempt to completely cover every phase of the work.

ON-THE-JOB TRAINING

| NAME | DEPARTMENTS | | |
|---|---|---|---|
| | AUG. 19 TO AUG. 31 | SEPT. 2 TO SEPT. 14 | SEPT. 16 TO SEPT. 28 |
| 1. SUST | 4 | 5 | 6, 7 |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |

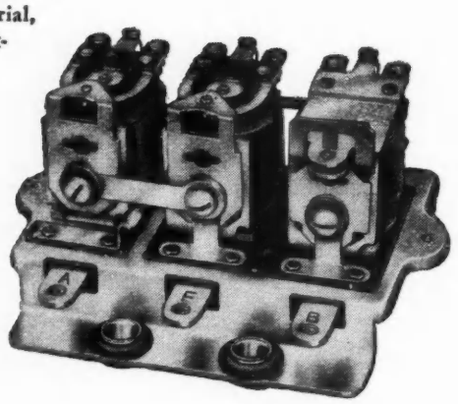
| DEPT. | TRAINEE REPORT TO |
|---|---|
| 1 | NELSON |
| 2 | CAMPBELL |
| 3 | JANESH |
| 4 | SCHWALL |
| 5 | NELSON |
| ▲ 6 | JENSEN |
| ▲ 7 | WILBUR |
| 8 | SOEMOD |
| 9 | MERRIMAN |

▲ ONE WEEK ONLY

***Fig. 6B. Apprentice training schedule lists employees and departments to which they are assigned for 6-week period.***


LET PEEDEE SHOW YOU WHY P&D VOLTAGE REGULATORS do a better job . . .

See these windings? See how they're made with *large* size insulated copper magnet wire? That's for maximum electrical stability. Now, look at that insulation — it's the best laminated phenolic plate available. Notice those contact points. They're of the integral type, and I can tell you they resist pitting. Yes, and because the riveting shank and contact proper are made of the same material, they provide minimum and unvarying electrical resistance between contact and mounting.



These, you know, are just a few of the many good things about P&D Voltage Regulators. Open up any product in P&D's *one complete line* of starting, lighting and ignition parts and I won't have to tell you any more. You'll see for yourself why tune-up jobs with P&D will point up your good work, satisfy customers, and keep that cash register ringing. Have you got a copy of our Catalog No. 47? If not, write for it today and I'll send you one!

*Turn Out Better Tune-up Jobs With PeeDee*

GENUINE P&D IGNITION PARTS

P&D MANUFACTURING COMPANY, INC.

LONG ISLAND CITY 5, N. Y.

STARTING • LIGHTING • IGNITION


The school room provided for this instruction is equipped with a movie and slide projector, wall charts, demonstration models, a blackboard and the initial qualification testing equipment.

The following is a list of technical related instruction which is given each year.

### Related Technical Instruction

A. Chassis and Steering
1. Chassis and Steering—O.E. 486, 487
2. Steering Geometry—O.E. 484

B. Unit Parts
1. Clutches—O.E. 482
2. Transmission and Transfer cases —O.E. 485
3. Differential and Power Dividers
4. Drive line and U Joints
5. Rear axles

C. Motors and Lubricants
1. Motors—General
2. Engine Assembly—O.E. 463
3. Valves and Timing
4. Micrometer reading
5. Roller Bearings and Lubrication
6. Clearances and Lubrication
7. Petroleum—General Oils, greases, fuels
8. Fuels—detonation, etc.
9. Diesels—2 and 4 cycle

D. Safety
1. Safety Precautions—Vehicles
2. Safety Precautions—Equipment

E. Electrical and Ignition System
1. Basic Electric—General Lighting, Ignition, etc.
2. Battery, Voltmeter, etc.
3. Generators and Starters
4. Ignition—coil, condenser, distributor

(TURN TO PAGE 150, PLEASE)

# "Cars roll out of our shop faster . . . because our mechanics use Snap-on Tools"

says H. D. Krieger, Service Director
Kvam Motor Co.
Milwaukee, Wisconsin

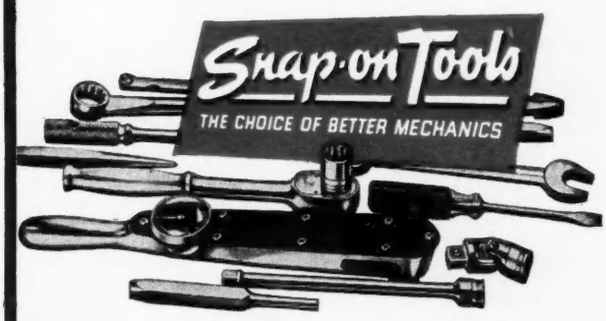
. . . "and," continues Mr. Krieger, "with the volume we handle, speed is especially important." That just about sums up why so many service managers like to see the "Snap-on man" make his regular calls.

In the first place, he knows his mechanics are buying the kind of quality tools that help turn out service jobs that build *customer-satisfaction* . . . and turn them out faster! The service manager knows, too, that this is the "time-saving" way to buy "time-saving" tools. There is no "time-out" for his mechanics to go shopping around, for the "Snap-on man" brings the tools right to the shop. Mechanics can buy direct . . . one tool or a complete set. They can "see and try" before they buy! And the "Snap-on man" keeps coming back (he's been doing it for 28 years) to make sure every Snap-on tool he sold delivers the kind of performance it was engineered and built to deliver.

★ ★ ★

Look to Snap-on and the "Snap-on man" to bring you the finest in service tools.

**For 28 years, Snap-on's Direct-to-user Tool Service has proved to be "The Time-Saving Way to Buy Time-Saving Tools"**




**SNAP-ON TOOLS CORPORATION**
8026-D 28th AVENUE KENOSHA, WISCONSIN
*International Division: Kenosha, Wis., U. S. A.*

## Apprentice Training

(CONTINUED FROM PAGE 148)

5. Ignition—Timing

F. Diesels
   1. Diesel pump
   2. Carburetion

G. Brakes
   1. Brakes—General
      Nomenclature
      Hydraulic
   2. Air Brakes
   3. B—K Vacuum
   4. Electrical Brakes
   5. Comparison—all braking systems

It is necessary to devote several periods to much of this material in order to cover it adequately. Many of the highly technical lectures are followed by demonstration periods, and if further clarification is required, the trainees are given the opportunity to learn by doing.

Periodic examinations are held every third or fourth period to determine whether the subject matter is being properly presented and thereby understood by the trainees

The On-The-Job Training extends over a period of 16 weeks. Apprentices spend 2 weeks each in three different departments in our repair shop. After completing this 6 week period, they are assigned to productive jobs in the shop for a period of from 6 to 12 weeks, after which time they will again be assigned to three more departments for concentrated On-The-Job training. This procedure is followed until each man has had 16 weeks of training in all departments, whereupon he will be permanently assigned to the work for which he is best qualified. This is determined by his performance grades and the man evaluation records, Fig. 4, made out by the foremen or instructors in the various departments.

Apprentices are reassigned to certain departments if their work indicates that additional training is necessary. When possible the apprentices are assigned to productive work in the departments in which they have just completed their training. This of course applies primarily to those departments wherein the training deals specifically with the development of their special skills such as departments 1, 2, 3, 4, 5, 8 and 9 below. They are also assigned to the PM service department, where they gain valuable experience in inspecting. testing, servicing and engine tune up.

A master control sheet, Fig. 5, is used to schedule the men through the various departments.

An apprentice-mechanic training schedule, Fig. 6, covering each six-week period, is made up from the master control schedule and is used to inform the apprentices of their assignments for that period.

### Graduation

WHETHER an apprentice is qualified for graduation after having completed his training is determined by three performance grades which are averaged for a final grade.

These performance grades are composed of:

1. A theoretical final examination
2. On-The-Job Training records
3. A practical performance examination

*The theoretical final examination* covers entirely the related technical

(TURN TO PAGE 156, PLEASE)

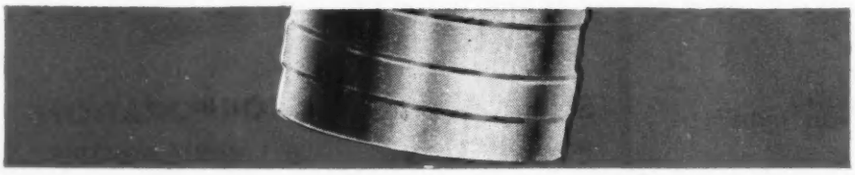

Don't be a passive Firebug

We don't have to describe the *active* firebug. Everybody knows of this maniacal type. Everybody is eager to detect him, to get him put away.

There is the calm, disregardless type, too. The man responsible for protecting premises against fires, but who feels...despite highest fire losses in history...his property will stay immune.

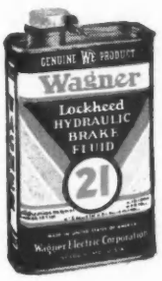
How about you? Is every vehicle, every garage and shop location protected by the right type of fire extinguisher? There is a size and type of Buffalo *better-built* Extinguisher exactly suited to every fire hazard. Your thoroughly-trained Buffalo representative will gladly check with you and make recommendations if you need additional equipment. If he isn't listed in the classified section of your telephone directory, please write us direct.

BUFFALO FIRE APPLIANCE
CORPORATION
DAYTON 1, OHIO



# *for Safety's Sake..*

# YOU CAN'T BEAT THIS WAGNER COMBINATION!




## REFILL with Wagner LOCKHEED HYDRAULIC BRAKE FLUID

It is an all-season brake fluid that mixes with all other approved brake fluids. It is unsurpassed for dependable performance, and recommended for all hydraulic brakes. Used as original fluid by car and truck manufacturers.

## RELINE with Wagner CoMaX BRAKE LINING

Unsurpassed for quick, safe, smooth stops. Long-lived because the ingredients wear slowly; it doesn't compress or swell; has uniform frictional qualities. The CoMaX line provides *complete coverage* for *all* brakes. Produced in rolls, blocks, sets or slabs.

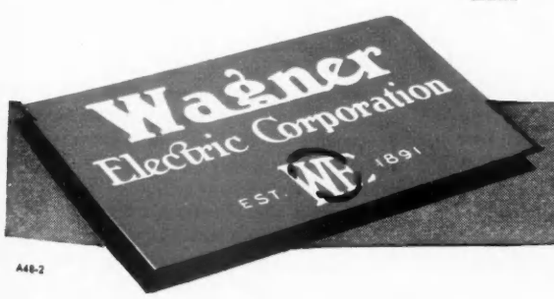
## REPAIR with Wagner LOCKHEED BRAKE PARTS

Recommended for superior quality, perfect fit, and dependable performance. Backed by Wagner's years of experience in designing and manufacturing brakes for original equipment. Available either in complete kits of essential parts for each specific job, or as completely assembled cylinders, through Wagner jobbers everywhere.

**Wagner Electric Corporation**

6470 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

***EVERY REPAIRMAN NEEDS*** **Bulletins HU-17G and HU-197 . . . Tips for better Brake Service—free on request.**




LOCKHEED HYDRAULIC BRAKE PARTS and FLUID · NoRol
CoMaX BRAKE LINING · AIR BRAKES · TACHOGRAPHS
ELECTRIC MOTORS · TRANSFORMERS · INDUSTRIAL BRAKES

A48-2

# CCJ NEWSCAST

## OFFICIALS URGE SAFETY AT ATA REGIONAL MEET

State and Federal officials spoke plainly to motor carrier executives about their safety performance, combining praise for a good record with warnings that more stringent regulation will be necessary unless that record is improved, at the first regional meeting in New York City sponsored by the American Trucking Associations, Inc., for carriers in the middle Atlantic and New England States.

Ed J. Buhner, president of ATA, opened a session covering the trucking industry's record with regulatory agencies, declaring the only way to lick a problem "is to face it squarely and, upon gaining an understanding of it, to take action." From then on, the audience faced its safety problem squarely as one official after another discussed "Your Record With Us." Here are some of their comments:

W. Y. Blanning, director of the Bureau of Motor Carriers, Interstate Commerce Commission: "The trucking industry is performing a necessary service in an efficient manner and its growth is proof of its importance to the national economy . . . The greatest danger to your industry is that restrictions will be brought about by public feelings that trucks are unreliable and dangerous."

General Merritt A. Edson, Commissioner of Vermont's Department of Public Safety: "The low number of accidents for which truck drivers are directly responsible substantiates my belief that they are among the most skillful drivers on our roads today."

William J. Dearden, Deputy Commissioner of New Jersey's Department of Motor Vehicles: "The old time truck driver who drove as if he owned the road and refused to concede an inch to the other fellow has almost completely disappeared from the highways." But truck drivers still have three shortcomings: they fail to maintain a safe distance between moving vehicles; they jockey for position, cutting into other lanes, and they violate the speed limits in open country.

Edward V. Flynn, administrative assistant, Pennsylvania Highway Safety Bureau: "Your record with us is not a pretty picture." He asked whether the trucking industry could afford to have 14,000 trucks laid up each year because of accidents, and suggested these cures: more rigid screening of drivers, more driver training, better maintenance, less haste and eternal safety campaigns for all personnel in the industry.

Ted V. Rodgers, chairman of ATA's board, closed the session, declaring the achievement of better safety performance is up to top management. Some insurance firms, he said, have declined to provide liability coverage for trucking companies because the executives of the carriers neglect to attend personnel safety meetings and have not adopted positive safety programs.

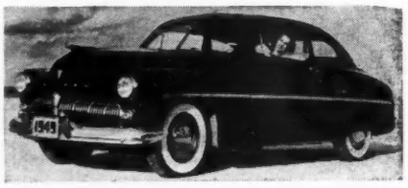
## DATES & DOINGS

**MAY 21-22—Associated Motor Carriers of South Dakota convention, Alonzo Ward Hotel, Aberdeen, S. D.**
**JUNE 6-11—Society of Automotive Engineers Summer Meeting, French Lick Springs, Indiana.**
**JUNE 7-11—Fleet Supervisor Training Course, University of Wisconsin, Madison, Wis.**
**JUNE 8-10—Utah Motor Transport Assn. Annual Convention, Newhouse Hotel, Salt Lake City, Utah.**
**JUNE 10—Central Motor Freight Assn. Annual Convention, Palmer House, Chicago, Ill.**
**JUNE 11-12—Pennsylvania Motor Truck Assn. annual meeting, Penn Harris Hotel, Harrisburg, Pa.**
**JUNE 11-12—Motor Transport Assn. of South Carolina, Annual Convention, Caesar's Head Hotel, Caesar's Head, S. C.**
**JUNE 14-18—Fleet Supervisor Training Course, Marshall College, Huntington, W. V.**
**JUNE 21-25—Fleet Supervisor Training Course, University of Richmond, Richmond, Va.**
**JUNE 26-27—Maine Motor Vehicle Assn. Annual Convention, Rangeley-Sheraton, Rangeley, Maine.**
**JUNE 12-16—Fleet Supervisor Training Course, Northwestern University, Evanston, Ill.**
**JULY 16-24—Road Show, American Road Builders' Assn., Soldier Field, Chicago, Ill.**
**JULY 26-30—Fleet Supervisor Training Course, University of Denver, Denver, Colo.**

## GEORGE STOUT RESIGNS

George Stout, sales promotion manager of the Perfect Circle Corp., has resigned that position in order to devote full time to establishing his own business. He plans to offer counselling and agency service on advertising, promotion and merchandising. Pending the acquisition of satisfactory headquarters, Mr. Stout's temporary business address will be his home at 900 Maplewood Drive, New Castle, Ind.

## 1949 Mercury



**Six passenger coupe typifies radical new styling of 1949 Mercury line. The car uses a new 255-cu-in., 110-hp V-8 engine, somewhat larger than the Ford unit, and incorporating the new features recently announced in connection with the Ford truck line. Other radical changes include use of coil spring independent front end suspension, semi-elepitic springs in rear with hypoid axle and hotchkiss drive, new low-pressure tires and the inclusion of an over-drive unit as optional equipment.**

## '48 ASI SHOW ON NAVY PIER

Plans for the 1948 Automotive Service Industries Show have already started to roll. The location will again be Navy Pier, Chicago; the dates are Dec. 6-10. As in the past, sponsoring associations are Motor & Equipment Wholesalers Association, Motor & Equipment Manufacturers Association and National Standard Parts Association.

A 5-day show is scheduled for this year, instead of 6 days as in the past. On the first three days, December 6, 7, 8, the show will be open to members of the sponsoring associations only. Invited guests may attend the last two days, December 9-10 only. The A. S. I. Show is exclusively a wholesaler's affair and only those manufacturers and wholesalers participating in a manufacturer-through wholesaler-through retailer type operation are permitted to exhibit or attend.

## TURNPIKE SITDOWN FIZZLES

Approximately 1000 tractor trailer combinations ground to a halt April 6 on the Pennsylvania Turnpike in protest of the state's 45,000 lb. gross vehicle weight law. Sponsored primarily by owner-operators who claimed they "couldn't make an honest living under the weight laws now", the "sitdown" came to an abrupt end when drivers were reminded that only the legislature can change the law and that it does not meet until January, 1949, and when state police moved in with portable scales.

## ICC POSTPONES LEASE HEARING

The Interstate Commerce Commission has released an order, dated March 10, which postpones to October 14, 1948, the hearing in Ex Parte MC-43, Lease and Interchange of Vehicles by Motor Carriers. The hearing was formerly assigned for hearing in Washington on April 19, but was postponed at the request of the Truck Leasing Committee of the American Trucking Associations, Inc., which has represented that additional time is necessary to solicit the comments and views of all interested motor carriers.

## PYRENE RECALLS 500,000 EXTINGUISHERS

The Pyrene Mfg. Co. of Newark, N. J. has called in more than half a million hand fire extinguishers.

An elusive and persistent corrosive in the extinguisher fluid—supplied to Pyrene by an outside manufacturer—has severely damaged some of the recalled extinguishers and would probably affect others in time, explains the company.

Corrosion affects certain internal parts so the extinguishers cannot be operated. Most exacting of company tests and extensive

(TURN TO PAGE 244, PLEASE)

# *See* for Yourself...

how Cummins ***Dependable*** Diesels perform profitably on the toughest kind of jobs. Your Cummins dealer—a specialist in power application—will take you to jobs in your vicinity . . . can show you:

- Equipment of the 101 leading manufacturers who satisfy customer demand with Cummins Diesels as standard or optional power.
- The wide range of jobs on which Cummins Diesels are doing more work at less cost.
- Operation records of Cummins Diesels on jobs like yours.

Acceptance by manufacturers and owners . . . on a wide variety of applications . . . is the strongest evidence that Cummins Diesels offer dependable, economical power for trucks requiring up to 275 hp.

**CUMMINS ENGINE COMPANY, INC. • COLUMBUS, INDIANA**

## Apprentice Training

(CONTINUED FROM PAGE 150)

classroom instruction. There is no exact time limit on this examination but most men finish in about four hours.

After the graduates have been selected a graduation party is arranged to which all principals are invited, including the business manager of the union, executives and supervisors of the Willett Co., and all the graduates.

WILLETT

This is to certify that

Alexander [illegible]

has satisfactorily completed a course of instruction in

Automotive Mechanics

*FIG. 7. Reproduction of the type diploma awarded each man upon successful completion of the Willett mechanic instruction course.*

A class valedictorian is elected, short speeches are made, and finally the diplomas are presented, bearing the seals and signatures of both the Union and the Willett Co. Fig. 8.

### Costs

The estimated annual cost to train an apprentice under this program is approximately $252. The breakdown of this average cost, based on a class of 30 apprentices is shown in Fig. 7.

The five categories into which this cost has been broken are supervision, instruction and clerical, equipment, labor and graduation.

The total supervisory cost of $1800, when spread over 30 trainees amounts to $60 per man.

We figured a cost of $10 per scheduled classroom period to cover the time of our instructors and the clerical work involved. Forty-five scheduled classroom periods each year, at a cost of $10 each amounts to a total of $450 or $15 per trainee.

The initial cost of the schoolroom and the necessary equipment, originally provided for training drivers, amounted to approximately $3000. The additional cost to equip the schoolroom in order to train mechanic apprentices did not exceed $150 since most of the equipment already provided could be used. Our estimate, therefore, amounts to only $5 per trainee each year.

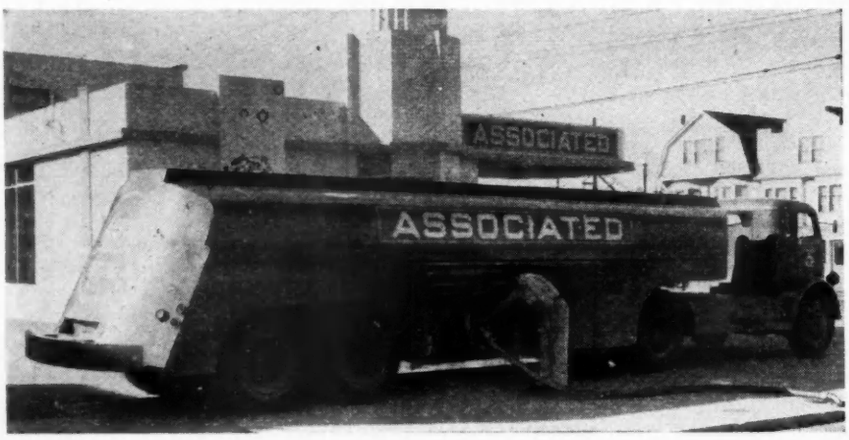
The labor item reflects the loss in labor to the company during the period of 16 weeks an apprentice is assigned to On-The-Job training, less that saved on the cost of a mechanic who would otherwise be needed during the remaining 34 weeks the apprentice is assigned to productive work.

Since a trainee is only about 50 per cent productive while assigned to On-The-Job Training, we charge a cost of $.70 per hour for that period which is approximately ½ of the average $1.37 per hour they earn. Then, $.70 x 16 weeks x 48 hours per week equals $537.60.

Since a mechanic earns $1.60 per hour, we figured a saving of $.23 per hour on each apprentice during the 34 weeks he is assigned to productive work.

Now then, $.23 x 34 weeks x 48 hours equals $375.36. $537.60 less $375.36 equals $162.14 which is the amount we consider lost in labor per trainee each year.

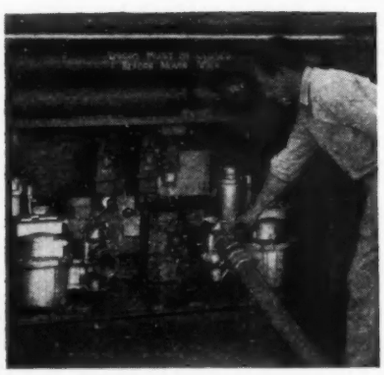
(TURN TO PAGE 158, PLEASE)


# GASOLINE IS HANDLED SAFELY

When you "get associated" with Tide Water Associated, you soon learn that this great oil company is among those cautious concerns that take every possible precaution to transport their products safely from refinery to bulk depot to filling station.

This new truck tank of Tide Water Associated Oil Company is equipped with the S. & J. Safety System which employs hydraulic safety valves in each compartment of the tanker.



These valves preclude the loss of liquid should a highway accident tear away the discharge lines, or should a fire occur during unloading operations. Even the heat of a common match will melt the fusible plugs which release the hydraulic pressure and close the valves instantly.

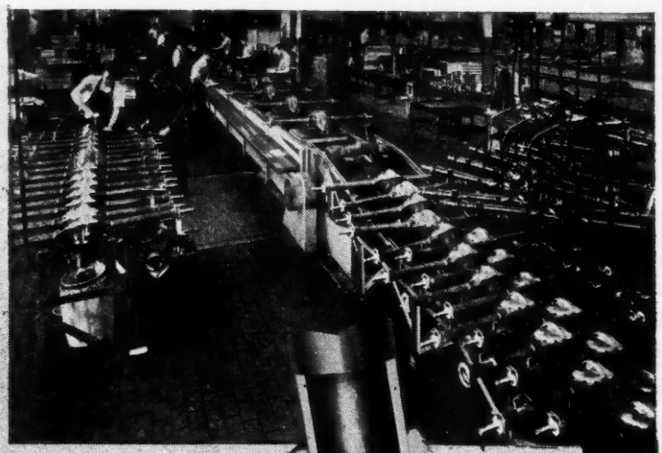
Associated knows that maximum safety pays off materially, as well as in public good will.

**SHAND & JURS CO**

BERKELEY, CALIFORNIA

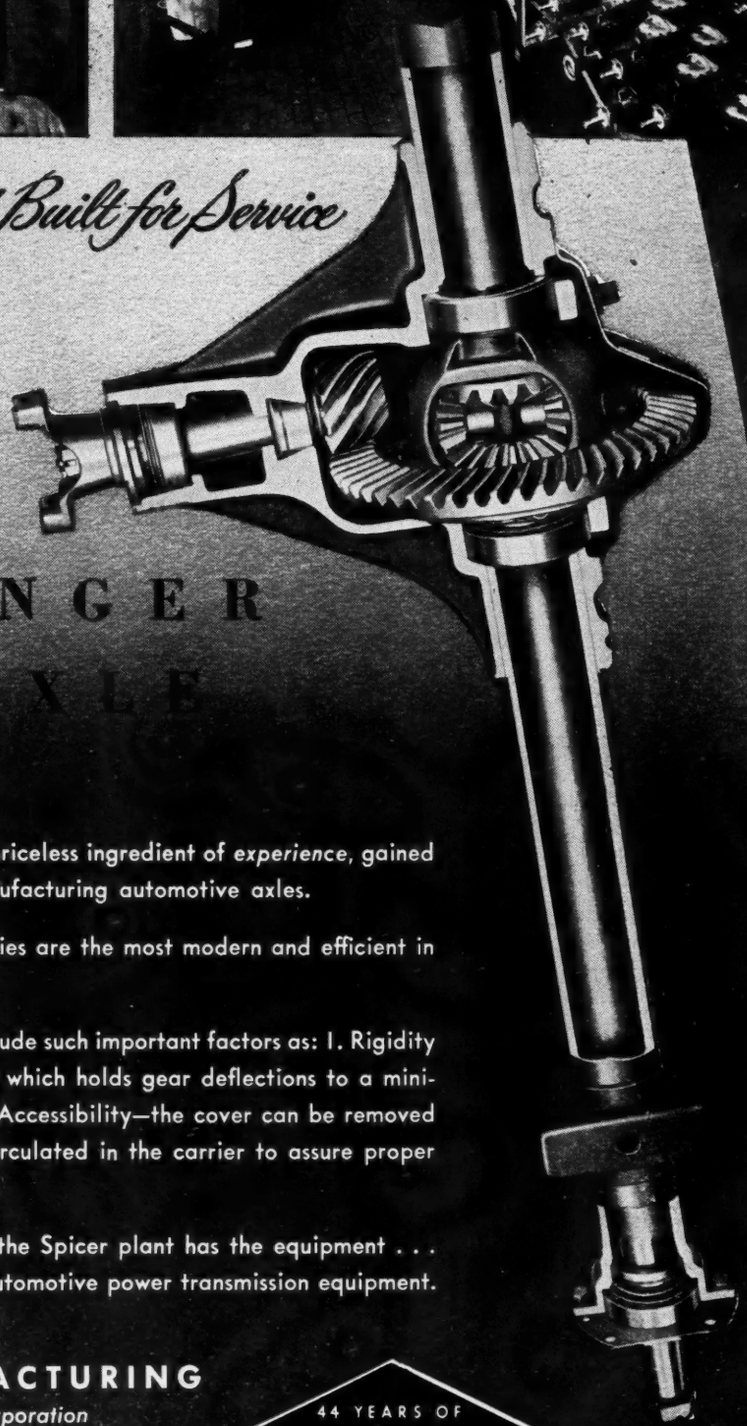
NEW YORK CHICAGO HOUSTON LOS ANGELES SEATTLE

**SHAND & JURS**



*Designed for Speed and Built for Service*

## —the Spicer PASSENGER CAR AXLE



SPICER AXLE DESIGN has behind it the priceless ingredient of *experience*, gained by over 40 years of developing and manufacturing automotive axles.

SPICER AXLE MANUFACTURING facilities are the most modern and efficient in the world today.

SPICER CONSTRUCTION FEATURES include such important factors as: 1. Rigidity —an absolute essential for accuracy, and which holds gear deflections to a minimum, assuring quietness and long life. 2. Accessibility—the cover can be removed easily for inspection of parts. 3. Oil is circulated in the carrier to assure proper lubrication and cooling of moving parts.

Spicer engineers have the know-how . . . the Spicer plant has the equipment . . . to meet your individual requirements in automotive power transmission equipment.

**SPICER MANUFACTURING**
*Division of Dana Corporation*
**TOLEDO 1, OHIO**

44 YEARS OF Spicer SERVICE

TRANSMISSIONS • PASSENGER CAR AXLES • CLUTCHES • PARISH FRAMES • STAMPINGS
TORQUE CONVERTERS • SPICER "BROWN LIPE" GEAR BOXES
UNIVERSAL JOINTS
RAILWAY GENERATOR DRIVES

## Apprentice Training

(CONTINUED FROM PAGE 156)

The cost of graduation amounts to $9 for a diploma and $1 per man for refreshments, served at the graduation party, all of which amounts to $10.

The total annual cost, therefore, to train an apprentice according to the above calculations is approximately $252.

### Results

THE results have been definitely pleasing. Out of 33 apprentices signed up, only five left after the first six months. Two of the five found other jobs, and the other three left because of physical ailments, insufficient experience or lack of ability. This is only a 15 per cent turnover. We found that if men remained for over 30 days they were very likely to be permanent.

As of January 1, 1948, 21 men have graduated and five more will graduate in June. Thus from a total of 33 apprentices, 26 will have remained to graduate. Only one left after graduating to take a job elsewhere.

### Conclusion

How well our program has met our need can best be expressed by comments from our maintenance superintendent and several of our foremen.

The Shop Superintendent said, "I think it is a swell idea. They have taken the place of mechanics which we can't get."

Our General Shop Foreman remarked. "We got some good young fellows here, which we couldn't have gotten if it hadn't been for the school. Good mechanics are hard to get now and the school was the only solution. Young fellows working together with the older mechanics helps to get the job done quicker."

Our Preventive Maintenance Foreman says, "I definitely am in favor of the school. It acquaints the men with all phases of the work we do. It also destroys the belief that the other man's job is easier. I think they will be better men in a year than some men were, before the school was established after having been with us for five years. Yes, I think it is a fine idea."

## Discussion

A. W. BASS, of Atlantic Refinery Co., raised some interesting points in a prepared discussion and took issue with some of Mr. Neumann's procedures. He said that the apprenticeship training idea, has a comparatively limited application, for it requires a rather large group in training at any one time if it is to prove economical. Such a large apprentice group in turn presupposes either a very large maintenance organization, or a labor turnover of unhealthy magnitude. Here in Philadelphia where Atlantic operates a maintenance shop with approximately 90 mechanical personnel, normal employments are far short of being sufficient to justify the establishment of an apprentice group. Another limitation of apprentice training is that it stops short of the overall continuing training which today's automotive maintenance work requires. As the engineering science advances, maintenance skills and techniques must advance with it. A mechanic schooled to maintain the vehicle of 15 years

(TURN TO PAGE 160, PLEASE)


OUT OUR WAY

THIS ONE SAYS THAT IT'S JUST AS GOOD AS SOL-SPEEDI-DRI--AND IT'S A QUARTER OF A CENT PER POUND CHEAPER!
DON'T GIVE ME THAT! THERE AIN'T ANYTHING AS GOOD AS SOL-SPEEDI-DRI! AND I'D PAY A QUARTER OF A CENT A POUND MORE ANY DAY TO BE SURE I'M GETTING MY MONEY'S WORTH--DON'T COME IN HERE AGAIN WITH THAT "JUST AS GOOD" STUFF! WE'RE STICKING TO SOL-SPEEDI-DRI!
STILL AN OLD MAIN STREET BOY--STILL BELIEVES IN GETTING THE BEST FOR THE JOB--NOW YOU SEE WHY HE'S THE BOSS!
SERVICE MANAGER
J.R.WILLIAMS
TELLIN' 'EM OFF
T. M. REG. U. S. PAT. OFF. COPR. 1948 BY NEA SERVICE, INC.

**BE SAFE . . . BE SURE . . . USE SOL-SPEEDI-DRI**

People who use SOL-SPEEDI-DRI—industry's original and foremost absorbent for all liquids—have learned that they can count on the uniformly high quality of SOL-SPEEDI-DRI. They have learned, too, that SOL-SPEEDI-DRI costs *less by the pound* because it does *more* work . . . because it is always efficient, always dependable.

Yes, it's quality all the way with SOL-SPEEDI-DRI . . . quality that assures you cleaner, brighter, safer floors . . . freedom from slips and falls caused by dangerous, slippery surfaces. Obtained by selective mining, laboratory-checked hourly, and processed by the most modern methods and equipment, SOL-SPEEDI-DRI comes to you in special weather-proof bags, *every* pound at peak efficiency.

**WHEN YOU BUY, BE *SURE* IT'S SOL-SPEEDI-DRI!**

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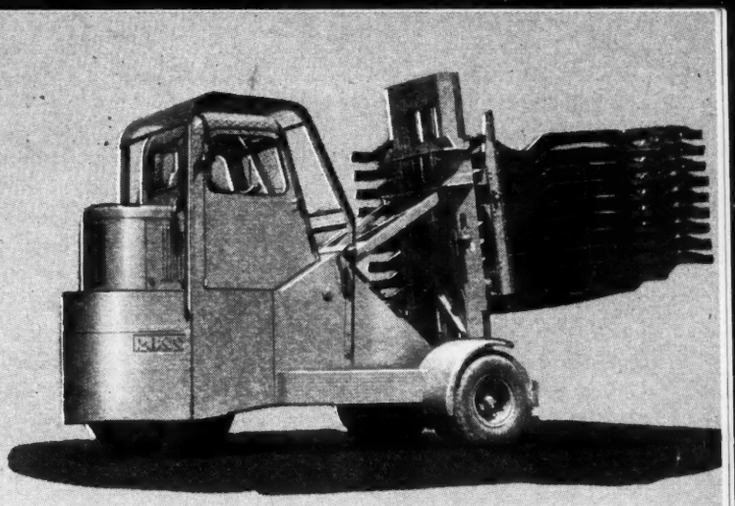
•

Warehouse Stocks Maintained in Principal Cities of the United States and Canada.

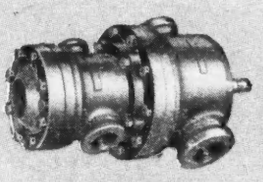
# LIFT TRUCKS that LOWER COSTS



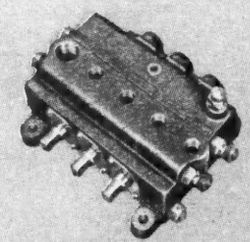
## ROSS
## Hydraulic LIFT TRUCK
**Model 15-HT • Capacity 7½ Tons**

USE

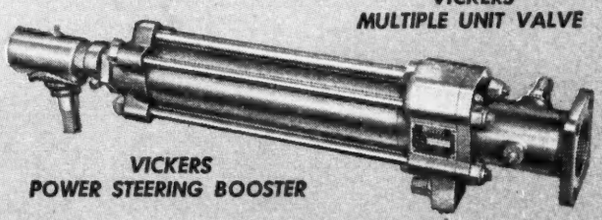
## VICKERS HYDRAULIC CONTROLS



*VICKERS DOUBLE PUMP*



*VICKERS MULTIPLE UNIT VALVE*



*VICKERS POWER STEERING BOOSTER*

The Ross Model 15-HT Lift Truck shown above is an excellent example of how Vickers Hydraulic Equipment can be used to help reduce materials handling costs. The cylinder that elevates the 7½ ton load at 35 ft per min gets its power from the Vickers Balanced Vane Type Pump . . . as does the tilt unit cylinder. Single lever and simultaneous control is provided by a Vickers Multiple Unit Double-Acting Valve . . . the valve spool construction assures finger tip control regardless of operating pressure; positioning is accurate, quick and easy. An integral relief valve automatically protects the hydraulic system against damage by overload.

This Ross Lift Truck has greater close quarter maneuverability because it is equipped with Vickers Hydraulic Power Steering. Effortless steering is a certainty as the power required for steering is provided by the Vickers Balanced Vane Type Pump. Adequate power is instantaneously available to meet any requirement. Safety in steering is assured as no reaction to the steering wheel is possible when bumps, chuckholes, etc., are encountered. Trucks handle more easily, more speedily, and with less operator fatigue.

For further information regarding the versatility and other advantages of these Vickers units, ask for the following bulletins: Vickers Vane Type Pumps . . . Bulletin 36-12; Vickers Multiple Unit Valves . . . Bulletin 40-13; Vickers Power Steering Booster . . . Bulletin 47-30. 3437

**VICKERS Incorporated** • 1418 OAKMAN BLVD. • DETROIT 32, MICHIGAN
*DIVISION OF THE SPERRY CORPORATION*
*Application Engineering Offices:*—ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • LOS ANGELES • NEWARK
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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT FOR 27 YEARS

## Apprentice Training

(CONTINUED FROM PAGE 158)

ago would not be equipped to repair satisfactorily today's vehicle without some interim instruction.

As a substitute for apprentice training where the training problem at starting level is insufficient to justify this apprenticeship, and as a supplement to apprentice training for the inservice employee, a subject or unit training program can very well be used. Such a training program can combine both classroom and actual shopwork. However, it is generally limited to one subject or to one group of allied subjects.

Several years ago when we first instituted mechanic training, we assumed that the text material for our various programs could be lifted bodily from the maintenance manuals of the equipment and parts manufacturers. It very soon became apparent, however, that excellent as this material was, it could not be used in its entirety nor without qualification, for several reasons. For one thing, it in many cases assumed knowledge or skill on the part of the mechanic, which assumption we did not feel safe in making. The methods and practices of different equipment builders were not always consistent despite the fact that they referred to similar operations on essentially similar parts. The manufacturer's recommendations did not always conform to what our experience indicated as being good, safe, or economic practice. The manufacturer based his practices on tools or equipment not always available to our people in certain localities. The recommendations of the vehicle builder did not always agree with the recommendations of the suppliers of materials and accessory equipment.

Another rather startling finding was that excellent as we felt our maintenance supervision to be, there was a surprising lack of agreement among them concerning techniques, practices and maintenance concepts. These disagreements highlighted a very important consideration which is all too frequently overlooked. Namely, that the need for training applies as well to top level supervision as to subordinate supervision and mechanics. The preparation of the subject information used in training became the most time consuming and difficult of all the pieces of the program. However, what we gained in determining a set of standard practices which were applicable and accurate, and what we gained in the way of supervisory training, more than justified the time and expense involved.

Whatever mechanic training a fleet operator undertakes should be designed to satisfy the conditions and situations peculiar to his operation. The results obtained by Mr. Neumann would appear to justify his method of attack. Much more important than the details of how he set up and conducted his program is the fact that he took direct and positive action to institute an effective training program. Those of us who have done work along these lines know that such work pays dividends.

STEPHEN CARTER, of the American Transit Co., led a prepared discussion stressing the necessity for worker motivation in any training

(TURN TO PAGE 162, PLEASE)

of LAMSON MILLED STUDS!

● Lamson Milled Studs are precision made to "fit like a glove" and stand straight in the tapped holes of an engine block. This makes for perfect alignment with the stud holes of the cylinder head, and saves needless fumbling. Automobile manufacturers use Lamson Milled Studs. How about *you?*

*Prompt Delivery of Most Sizes*

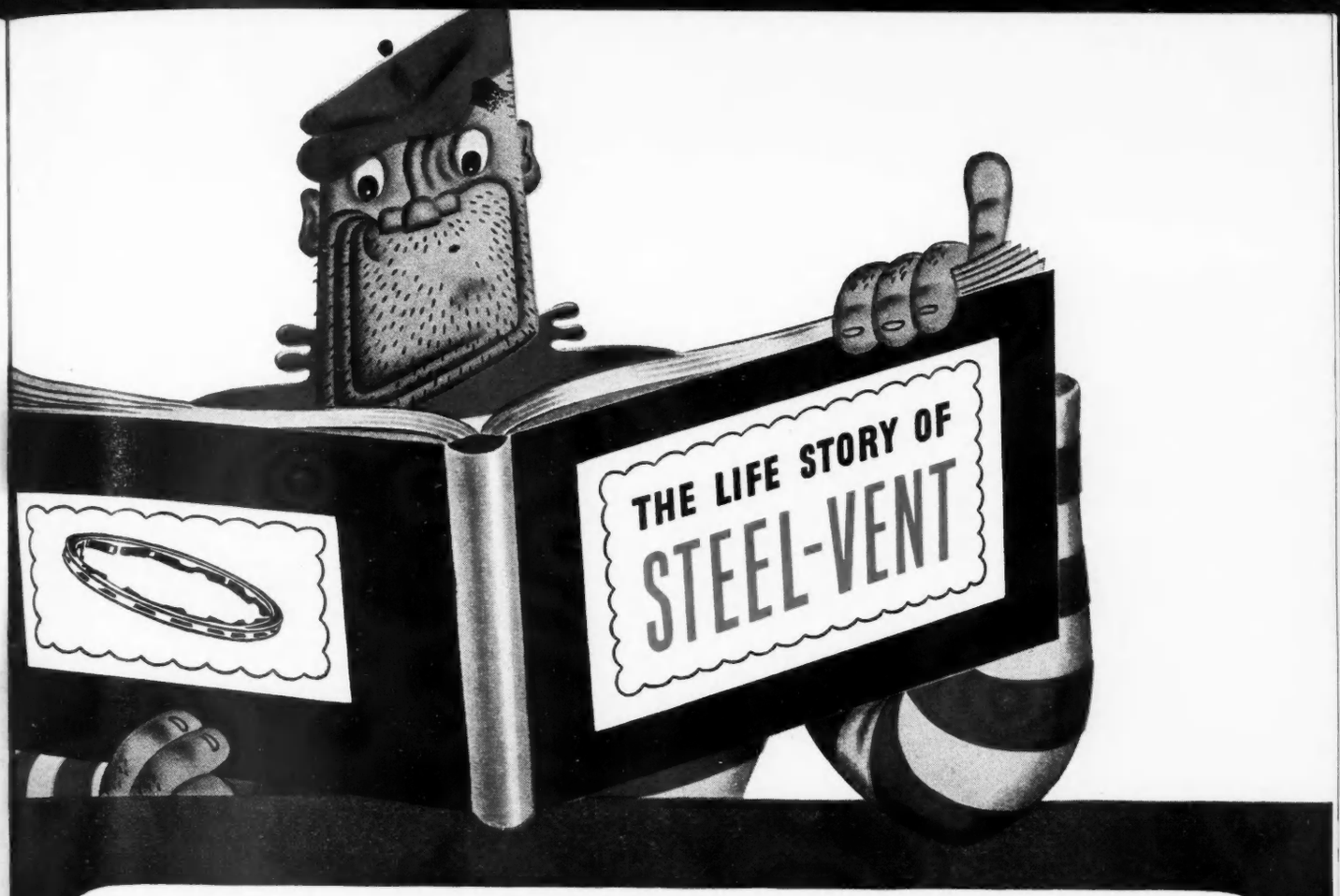
THE LAMSON & SESSIONS CO. • 1971 W. 85th St. • Cleveland 2, O.

*Plants at Cleveland and Kent, Ohio • Chicago • Birmingham*

AUTOMOTIVE FASTENERS

LAMSON & SESSIONS

*Ask your distributor for the Lamson Line*




# IT'S A WET RING
# IT REALLY CONTROLS OIL
# AND IT CAN'T CLOG

Steel-Vent is a "wet" ring. Its greater surface area helps give it greater oil delivering capacity. It carries this extra oil freely to the cylinder walls to provide generous wall lubrication all the way up.

Steel-Vent keeps oil always under control with patented features that give it high unit pressure with lower total tension. Ample drainage capacity easily handles extra oil.

Steel-Vent can't clog. Its side-opening spacer operates against a moving segment with a "breathing" action that breaks up and flushes away clogging particles of carbon and gum.

That's the Steel-Vent story—the simple, understandable reasons why Steel-Vent gives longer service life in any job, rering or rebore.

HASTINGS MANUFACTURING CO.
HASTINGS, MICHIGAN

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U. S. PAT. 2,148,997

# HASTINGS

**STEEL-VENT PISTON RINGS**

**TOUGH** *on Oil Pumping*

**GENTLE** *on Cylinder Walls*

## Apprentice Training

(CONTINUED FROM PAGE 160)

program. At least two fundamental factors should be considered in motivating the apprentice, he said: a program should consider the worker's desire for economic security, and it should fulfill his desire for social recognition within the group. The latter can be accomplished in great part through personal attention developed in the training technique, he said.

An important phase of the training, he warned, is in the transition from student to worker. Often a student who has been given special attention with an eye to cultivating initiative and independence in apprentice training, attains a feeling of regimentation when related to the mechanic group. If he becomes dissatisfied, he may quit and cost the company all the expensive training—or he may identify himself with the union in airing his discontent.

Mr. Carter's objective in outlining these conditions was to emphasize the fact that training must be continuous, that continual effort must be made to cultivate cooperation, initiative and a healthy state of mind. The quality of the mechanic's work, he stated, is dependent upon his attitude.

Mr. Carter further voiced the opinion that success of a training program depends in great measure upon the quality of the supervision. The supervisor's attitude should be conducive to good leadership. Too often, he said, the man chosen to supervise the apprentice may resent the attention given the student. He may feel that the apprentice should come up the hard way as he had to do. And finally, the supervisor may not be competent to develop the best in the students under him.

Mr. Carter emphasized that supervisors too should receive careful training. They should be screened carefully and should be kept informed by the front office with regard to company policy, planning and progress.

CHARLES HUDSON, of Tennessee Valley Authority, developed several points in conjunction with the paper. He said one of the primary prerequisites of a good successful training procedure is that it be accepted by supervisors, mechanics and the union. It is the job of management to sell the program to these groups. He said that adequate and proper training material must be available, that the students must be able to read and understand instruction material without unnecessary extra effort. For this reason students should be screened carefully.

Mr. Hudson emphasized that a training program should stress preventive maintenance rather than simply doing an overhaul or assembly job. Students should be taught initiative, he said, and the ability to make certain decisions with regard to vehicle repair. He concluded with the point that a good training program is an asset to the organization. It teaches men to work safely and it teaches them to think safety. It offers reserves of competent mechanics for promotion to key positions.

*END*

***(Please resume your reading on P. 122)***


**Fitzgerald made Gaskets when..**

ON July 28, 1908 the American car "Thomas Flyer" was pronounced the winner of the New York to Paris auto race (via Alaska and Siberia), which started in New York on February 12th of the same year. Then, as now, gaskets of all types were essential to the automotive industry.

SINCE 1906 Fitzgerald has made gaskets of the highest quality. Contact your Fitzgerald jobber.

THE FITZGERALD MFG. CO., TORRINGTON, CONN.

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GASKETS

# DETROIT DISPATCH

**Market for Heavies Slips . . . . Insurance Up Again . . . . Radio Interference Cut . . . . Butyl Truck Tubes? . . . . Jitters Not Bad Yet . . . . Little High-Octane in Sight . . . . Tucker Backs Up**

*by* ***LEN WESTRATE***

**CCJ Detroit News Editor**

## Market for Heavies Slips

There no longer is any doubt that the market for heavy-duty trucks has slipped badly. One manufacturer of large heavy-duty units says they have had more than 100 cancellations and have had considerable difficulty in selling the trucks elsewhere. Practically all large-truck dealers have sizeable inventories in stock and some are reported to be pressed financially by their financing agencies. In the medium and lighter classifications the market has not sagged noticeably, but it shows soft spots in scattered locations principally in larger cities. Used truck business is off badly in most places, the only activity being in light panel and pickup jobs. An exception to the rule in the heavy class appears to be the new Ford line which the company claims has sold out for the rest of this year. Ford has started a second shift on the truck assembly line to raise production to more than 300 units a day.

## Insurance Up Again

Upward revision of automotive insurance rates predicted here last month already is under way. By the middle of March the underwriters in four states and the District of Columbia had started to revise upward passenger car and truck insurance charges. Increases are as follows for commercial vehicles: California, bodily injury up 15 per cent, property damage up 30 per cent; Rhode Island, no change in bodily injury rates, an increase of 17.8 per cent in property damage charges; West Virginia, bodily injury up 8.5 per cent; Idaho, property damage rates up 16.6 per cent; District of Columbia, property damage rates increased 18.6 per cent.

## Radio Interference Cut

All car, truck and bus manufacturers now have complied with recommendations made by AMA in re-arranging electrical systems so that interference with television broadcasts is cut to a minimum. The recommendations were submitted by the SAE sub-committee on radio interference after consultation with the Radio Manufacturers Assn. Alterations consist principally in shortening high tension leads to no longer than 8 in. or by shielding those longer than that. Leads have been shortened in most

(TURN TO PAGE 166, PLEASE)

Whether you operate heavy or light equipment, on long or short hauls, on mountain roads or in city traffic — the extra performance of GATKE *CUSTOM-BILT* Brake Blocks offers important advantages —

The smooth, non-grabbing action adds countless miles to tire life, with reduced strain on drivers and equipment.

Dependable holding power at all service temperatures gives wider SAFETY margins.

The long wear life means extra miles between adjustments — keeps equipment fit for the road with less maintenance expense.

COMPARISON PROVES: Use GATKE *CUSTOM-BILT* Brake Blocks for your next five relines and compare results.

Ask your GATKE Jobber or write.

**GATKE**
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**BRAKE BLOCKS AND LINERS**
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**Gatke** CUSTOM-BILT **BRAKE LININGS**
BLOCKS SETS ROLLS SHEETS
GATKE CORPORATION
248 N. La Salle St., Chicago 1, Ill.

## Detroit Dispatch

(CONTINUED FROM PAGE 165)

cases by moving the coil closer to the distributor. Vehicles now fall well within the tentative tolerable limit of radiation, which has been set at 35 microvolts at 50 ft. Use of suppressors is not required at this value, although some work is being done by spark plug manufacturers on building suppressors into the plug. Most cars now come equipped with radios and have suppressors installed for that reason, and the number of trucks carrying radios and suppressors also is increasing. The position of the industry on radiation suppression is that it currently is supplying adequate protection for television, and that it is far ahead of the field when compared with street cars, and certain types of electrical equipment which interfere greatly with broadcast reception. Changes in automotive electrical systems do not affect servicing in any way.

### Butyl Truck Tubes?

There is a possibility that the tire companies may switch from natural rubber to butyl for truck tire inner tubes. The reason is that they have had some trouble with butyl tubes in passenger car tires this past winter. At temperatures of around zero, butyl tubes have a tendency to stiffen after standing several hours. When the motorist starts out, the tube does not warm up immediately and tends to fold and wrinkle within the casing, causing chafing and consequent failure. Very little, if any, difficulty is found with butyl tubes in truck tires, however, possibly because of the higher pressure and heavier tires. Consequently butyl may be used for truck tubes and natural rubber now going into large commercial sizes may be diverted to passenger car tubes. Nothing definite on that yet, however. The companies are trying to overcome the cold weather difficulty with butyl by research in compounding. They would like to keep using it for passenger car tubes because of its superior air retention properties.

### Jitters Not Bad Yet

War jitters have led to some rumors outside Detroit that the automobile companies have been asked by the government to get ready for war production. A check with the manufacturers here shows that none of them has had any word to that effect. They point out that in the event of another emergency, automobile plants would again do their part, but there is nothing to warrant the reports that such a need is imminent. It also is true that surplus war plants bought or leased by the automotive industry are to be turned back to war work in case of an emergency under the terms of the agreements under which they were acquired. Another indication of the times is the report that the government is getting ready to order sizeable quantities of truck tires. Rubber companies have little to say about it, however.

### Little High-Octane In Sight

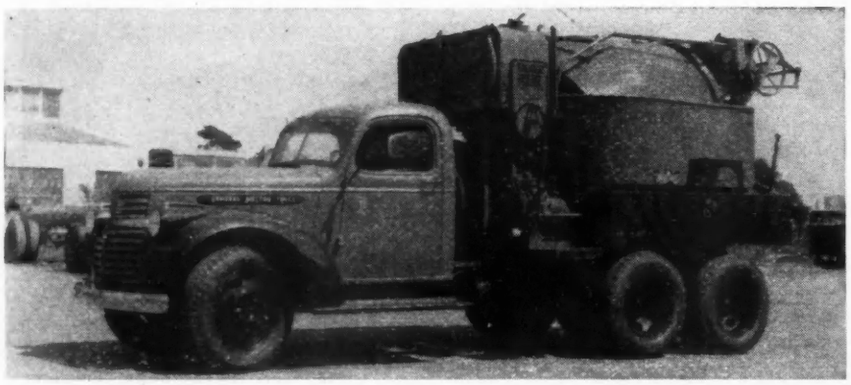
Robert E. Wilson, chairman of the board of the Standard Oil Co., (Ind.) is not optimistic about quantity production of high octane gasoline for high compression automobile engines in appreciable quantities during the next two or three years. At a press conference in Detroit he pointed out that the demand for petroleum products is so great that all efforts will be in the direction of volume until the pressure is relieved. He said that the oil industry cannot make more gasoline and simultaneously increase the octane rating. He added that many smaller refineries are not equipped to go into production of higher octane fuels.

### Tucker Now Backs Up

Tucker Corporation completed the first car on its new assembly line recently, just a few minutes before the first stockholders meeting opened. To refute reports that the car did not have a reverse gear, as reported at the time of the showing of the first hand-built model, Preston T. Tucker, president, backed the car several times. The Tucker plant currently is being prepared for production and schedules call for 125 cars to be completed by June. Plans call for eventual production of 120 cars an hour. He estimated that the price of the car, although not definitely set, will be between $1800 and $1900 and that the company should begin to make money when production reaches 157 units a day.

*END*


"PERFORMANCE"



SOLD CASEY BROS. ON FABCO DUAL DRIVES!

One good turn deserves another, even in the construction industry. When one piece of equipment renders outstanding performance, that is your cue to buy more equipment of exactly the same type. That is the time to accept the answer and quit experimenting. That is just what is happening in the fleets of the "ready-mix" fraternity.

They have learned the advantages of equipping standard production model medium duty trucks with Fabco Dual Drives so that they can roll along easily on the highway with the second axle disengaged and merely trailing. Upon reaching the job the driver shifts into Dual Drive which gives him twice the traction, and full use of the engine power through lower gear ratios.

Fabco Dual Drives are distributed through automotive dealers throughout the United States. Write for catalog and name of nearest dealer.

*28 Years in this Business*

Fabco

F. A. B. MANUFACTURING CO.

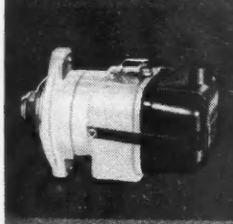
1249 SIXTY-SEVENTH STREET · OAKLAND 8, CALIFORNIA

Dual Drives · 6 and 10 Wheel Units · Logging and Highway Trailers · Frame Extensions

## behind these great products . . .

## a great American scientist

The new Edison "Extra Heavy Duty" Battery has "Endurite" separators, which make possible 50% longer battery life. For all passenger cars, commercial vehicles and tractors.



The New Edison "A.J" Magneto

The New Edison Spark Plug with the "SPUN-ON" Gasket

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**You can always rely on an Edison**

# WASHINGTON RUNAROUND

**Turnpike Study Soon . . . . Composite Trailer Data . . . . WAA's Deadline . . . . New Spark Plug Specs**

**Transport Study Active . . . . ICC Postpones Lease Hearings . . . . Highway Construction Up 63%**

WASTE?
WASTE?
WASTE?
WASTE?
Here's a Stop of 2 Hours
POINTS OUT ALL DELAYS
Frank
OVER-TIME
Gaps in that Travel Line Are Spelled: L-O-S-S-E-S
They mean Idle Time and that often means
OVERTIME!
OVERTIME is the "headache" of the hard pressed truck manager who is trying to make a good showing with the front office on trucking costs.
Now Overtime is sometimes unavoidable. When that necessary overtime occurs, pay it cheerfully. But how can you KNOW whether it's actually necessary—or whether it was the result of the truck standing idle somewhere and wasting time, during the day? You'll never know until you install Servis Recorders. Then you'll get the whole picture of the day's work (see chart above). Write for the full story. The Service Recorder Co., 1375 Euclid Avenue, Cleveland 15, Ohio.
The Servis Recorder
Tells Every Move Your Truck Makes


*by* ***GENE HARDY***

**CCJ Washington News Bureau**

## Turnpike Study Soon

The Committee on Economics of Motor Vehicle Size and Weight of the Highway Research Board expects to begin its pilot study on the Pennsylvania Turnpike and an alternate parallel route sometime early next month.

These road tests, which will take about nine weeks, actually comprise a vehicle performance study which is designed essentially to produce two segments of direct operating costs, fuel and time, for heavy commercial vehicles of various types and axle arrangements. The basic idea behind this work is to develop the maximum economy in the operation of the vehicles and the provision of highways.

In addition to obtaining the performance of a few carefully selected test vehicles over actual highway routes, studies will be made to determine the performance of passenger cars and commercial vehicles that normally use the test routes and the volume of traffic over the two routes during the period of the tests.

The Advisory Committee on Motor Vehicle Brake Research to the Public Roads Administration also expects to continue its series of road tests, begun in 1941, shortly after the Pennsylvania tests are completed. Objectives of this program are to determine current levels of brake performance, determine the essential of reasonable brake regulations, and to establish a better understanding of braking phenomena.

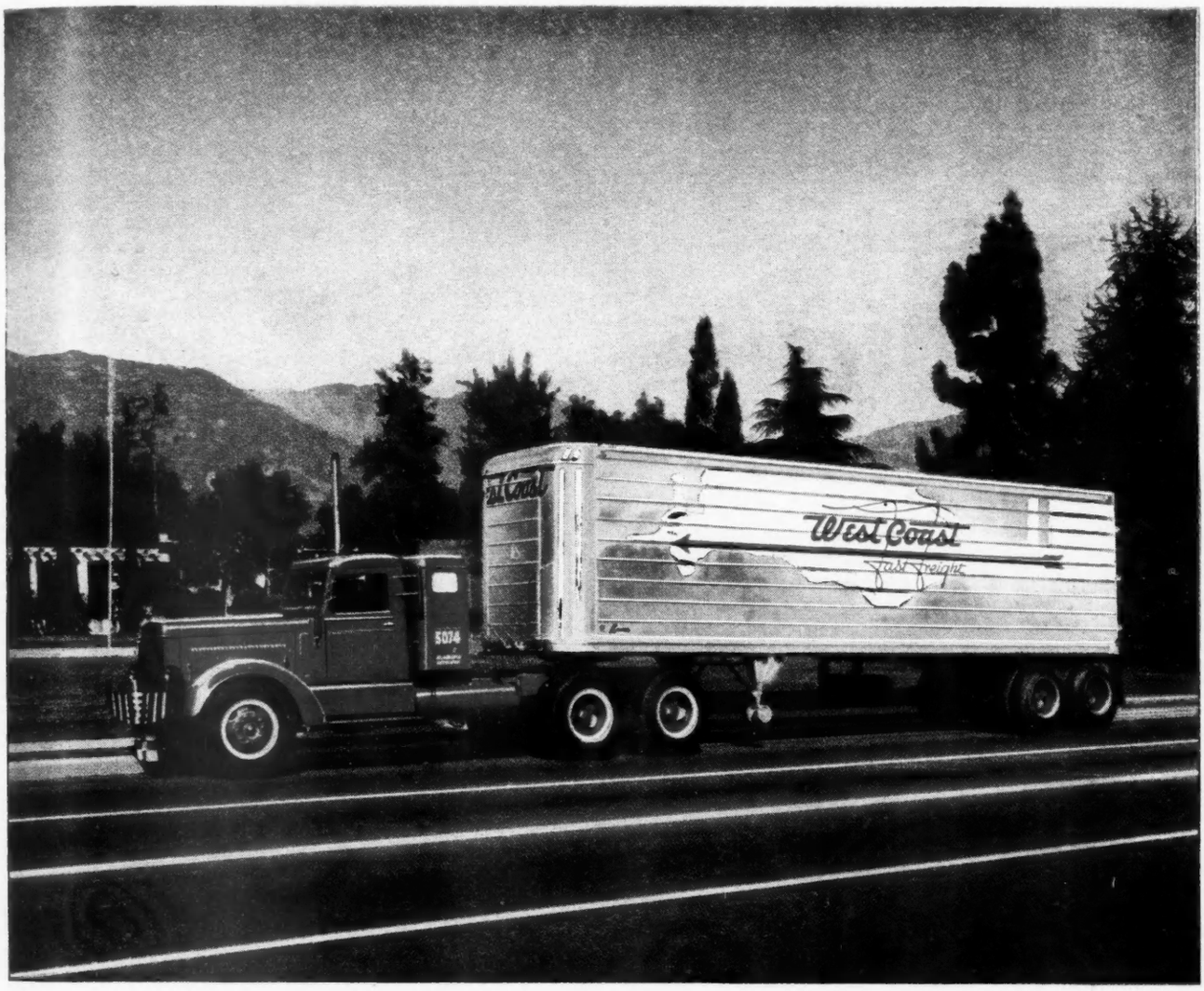
## Composite Trailer Data

A recent Gallup-type survey of the inside dimensions of dry-freight van type semi-trailers now being sold to the trucking industry reveals that the loading dimensions of a composite trailer would be approximately 30 ft. long, 7½ ft. wide and 7 ft. high, or a total of 1575 cu. ft.

The survey conducted by the Truck-Trailer Manufacturers Association shows that on inside length 26 per cent of the trailers being sold were between 28 and 30 ft. and 26 per cent were over 32 ft. Two western companies, however, accounted for the high percentage over 32 ft. If these companies were omitted, the others would show approximately 10 per cent of their trailers in the over 32 ft. bracket. Other percentages on inside length were as follows: less than 22 ft.—1 per cent; 22 to 24 ft.—

(TURN TO PAGE 170, PLEASE)

# Brown Aluminum Trailers Are Hauling 300,000 Pounds Extra Payload For West Coast Fast Freight




*With a fleet of 100 Brown Aluminum Trailers, West Coast Fast Freight is carrying bigger payloads per haul — the total extra payload per fleet trip is in excess of 300,000 pounds.*

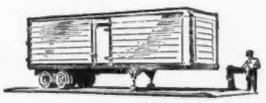
West Coast Fast Freight, a stickler for service to shippers, finds Brown Aluminum Trailers can be counted on to "deliver the goods" in both dependable operation and extra payoff in revenue from weight saving construction. Typical of many other leading operators, West Coast can load 3,000 pounds of additional payload in each Brown Aluminum Trailer.

Lightweight materials plus frameless airplane type monocoque construction guarantee this weight saving in Brown Aluminum Trailers. Dead weight is held to a minimum and the weight is in the freight where it pays off in revenue. If dead weight is costing you dollars, it will pay you to investigate Brown Aluminum Trailers. See the Brown representative in your area, or write us.

Brown Aluminum Trailers require no surface attention to maintain their permanent beauty and radiant background for operator's advertising message.

Brown
ALUMINUM
TRAILERS

BROWN INDUSTRIES, Spokane, Washington



*The scale tells the tale.*
*Lightweight means more freight.*

**Sales and Service in:** SEATTLE, SPOKANE, SALT LAKE CITY, LOS ANGELES, SAN FRANCISCO, DENVER, MINNEAPOLIS-ST. PAUL, KANSAS CITY, GREAT FALLS, FORT WORTH-DALLAS, AKRON, CHICAGO, JACKSONVILLE, MILWAUKEE

## Washington Runaround

(CONTINUED FROM PAGE 168)

6.8 per cent; 26 to 28 ft.—11.9 per cent; and 30 to 32 ft.—22.5 per cent.

On inside width 100 per cent of trailer sales were between 88 to 92 inches.

On inside height 65.5 per cent were 7 ft.; .6 per cent less than 6 ft.; 9.3 per cent—6 ft., 6 in.; 16 per cent—7 ft., 6 in.; .7 per cent—7 ft., 9 in.; and 7.9 per cent over 7 ft., 9 in.

The gross vehicle rating ranged from 30,000 to 55,000 lb., with an average of 40,000 lb. The net payload rating ranged from 26,000 lb. to 40,000 lb., with an average of 28,000 lb.

### Transport Study Active

The transportation investigation of the House Interstate and Foreign Commerce Committee will again become active some time this month with a few days of public hearings. The committee, looking toward legislation which would outline a new national transportation policy, expects the hearings to develop some new ideas which can be used to bring up to date the original committee report of more than a year ago. Interested organizations are expected to add new legislative ideas.

No specific legislation will be discussed at the hearings, nor does the committee expect to push through a bill in the short time remaining before Congress adjourns. However, as pointed out by committee analyst Dr. John H. Frederick, the ground work will be laid for speedy action by the next Congress. A new report will be issued as a result of the hearings. A draft of tentative legislation is also a likely result.

### New Spark Plug Specs

A new set of specifications for automotive spark plugs is expected to be issued by the National Bureau of Standards within the next few months. The new specs will be submitted to the manufacturers for approval before being promulgated. The Bureau has done considerable test work on spark plugs. Its most recent work has been a series of comprehensive tests on the temperature characteristics of spark plugs.

### WAA's Deadline, June 30

Striving to meet a June 30 liquidation deadline, the War Assets Administration reported less than 1000 surplus motor vehicles in its inventories as of January 31, 1948. From 1944 thru January 31, WAA had sold 509,632 vehicles at a net return to the government of 42 per cent of original acquisition costs.

### Trailer Output Up Slightly

Truck-trailer production in January, as reported by the Census Bureau, registered a slight increase over December, 1947 totals —3,482 units as compared with 3,285. This output was the highest recorded by the industry since last October. Shipments during January totaled 3,329 units as compared with 3,906 the previous month.

### ICC Postpones Lease Hearings

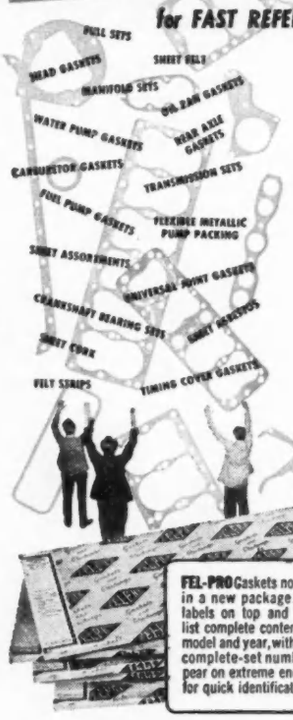
The Interstate Commerce Commission has postponed from April 19 until October 14 its hearing on a broad set of proposed vehicle leasing and interchange regulations. The Commission announcement pointed out that the postponement was made "at the request of the Truck Leasing Committee of the American Trucking Associations, Inc., which has represented that additional time is necessary for it to solicit the comments and views of all interested motor carriers

(TURN TO PAGE 172, PLEASE)


# 7,500 GASKETS ...at your finger tips!

in FEL-PRO's new FREE catalog

for FAST REFERENCE, EASY READING — the Gasket PICTURE-STORY




WHETHER you're operating two trucks of the same make and year, or 60 passenger units in a dozen models, you'll like the new handy Fel-Pro Gasket Catalog . . . a catalog that's *really* easy to use.

With Fel-Pro's new 166-page catalog you can find exactly what you want the *first* time you look—whether it's a black, steel or copper head gasket for a current model, or a carburetor gasket for a 1928 Diamond "T". The catalog contains some 7500 listings—and many gaskets are pictured for quick identification. Also shown are sheet cork, felt, asbestos, Felpak, Karropak and other materials for your own gasket cutting.

More and more Fel-Pro Gaskets, backed with 30 years of gasket-making "know-how" and designed for long-time job protection service, are being used as *original* equipment on cars, trucks, tractors and engines. Car builders *know* their quality.

For longer mileage under difficult operating conditions use Fel-Pro Gaskets as replacement parts in your shop—ask for Fel-Pro when you contract a repair job to an outside garage.

FEL-PRO Gaskets now come in a new package. Large labels on top and bottom list complete contents. Car model and year, with gasket complete-set number, appear on extreme end edges for quick identification.

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"Capital D-e-a-r capital M-r period capital H-o-d-g-e-s colon, capital T-h-i-s i-s t-o i-n-f-o-r-m . . . ."

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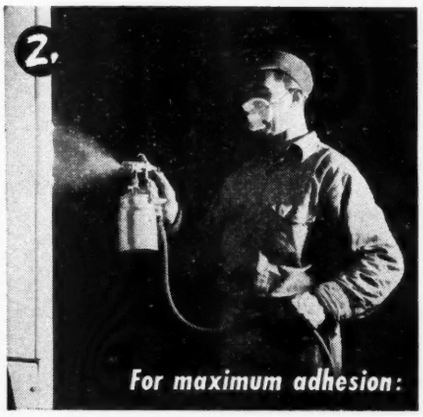
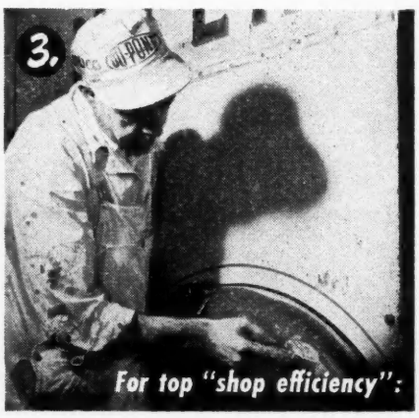
REG. U. S. PAT. OFF.

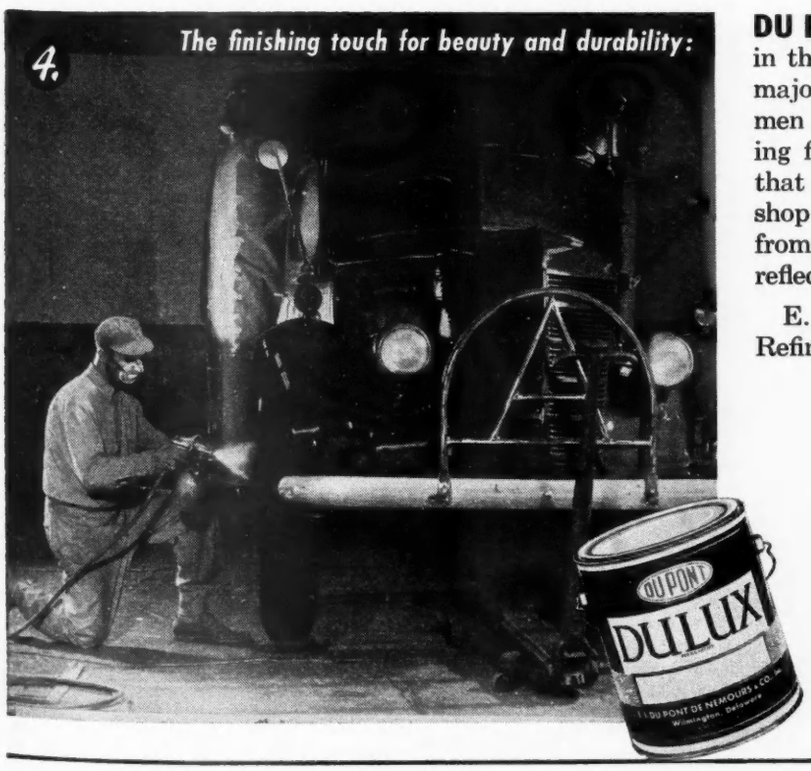
**DU PONT PREP-SOL**— Prep-Sol starts the job *right!* It slightly softens up the old finish . . . removes grease, tar and traffic film quickly . . . prevents sanding of foreign matter into the old finish . . . promotes good adhesion of the new finish. Use Pep-Sol for faster, easier surface preparation on all refinishing jobs.




**DU PONT PREPARAKOTE** — Here's a primer that goes on easily, dries fast . . . and *stays put!* It's specially formulated to work *with* DULUX in creating better refinish jobs. Preparakote *speeds* work; no need to wait for it to "flash" between coats... and it's ready for final sanding in four hours.




**"DULUX" PUTTIES & THINNERS**—Use the best *with* the best . . . specify DULUX all the way! DULUX Putties, Glazing and Hard, do a top-notch job. DULUX Thinners, too, are reliable . . . help move work along. VARI-TEMP Thinner, for example, can help you avoid a "slow" shop on cold, damp or hot, muggy days.




**DU PONT "DULUX"**—*Proved superiority...* in the shop and on the road! For years, the majority of fleet operators and maintenance men have chosen DULUX...for better-looking fleets . . . for day-in, day-out durability that keeps trucks and buses out of the paint shop longer. Do the job the DULUX way . . . from start to finish . . . and help your fleet reflect your sound management!

E. I. du Pont de Nemours & Co. (Inc.), Refinish Sales, Wilmington 98, Delaware.

DU PONT

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BETTER THINGS FOR BETTER LIVING

...THROUGH CHEMISTRY

**DULUX**

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**Enamel**

## Washington Runaround

(CONTINUED FROM PAGE 170)

and motor carrier organizations concerning the issues presented in the proceeding and to hold conferences at various points for the purpose of open discussion of these issues. The Committee has expressed its confidence that if it is given time to carry out its program, the motor carrier industry will be enabled to present for the record evidence which will expedite an ultimate solution."

### Highway Construction Up 63%

During 1947 an estimated $1,154 million of highway construction was put in place throughout the United States, a 63 per cent increase over the 1946 expenditure of $706 million, according to the Public Roads Administration. Activity on all federal-aid highway programs accounted for slightly more than half, or $586 million, of the 1947 total independent state work amounted to $246 million, while work at the local level accounted for an estimated $322 million. Activity on federal-aid projects registered the largest gain over 1946—82 per cent; followed by local work—up 49 per cent; and independent state—up 46 per cent.

PRA points out, however, that the level of highway construction is still far below the rate necessary to make any appreciable reduction in the huge volume of accumulated and constantly growing needs. New construction requirements for additions and improvements to an overloaded highway system were huge even before the war. With wartime deferment, the backlog steadily mounted, and has pyramided still more through new demands stemming from a rapidly growing traffic volume and urban congestion. As a result, the magnitude of foreseeable, needed, new highway construction is enormous. To accomplish any effective progress toward meeting these needs would require a long-run period of activity far in excess of the 1947 rate."

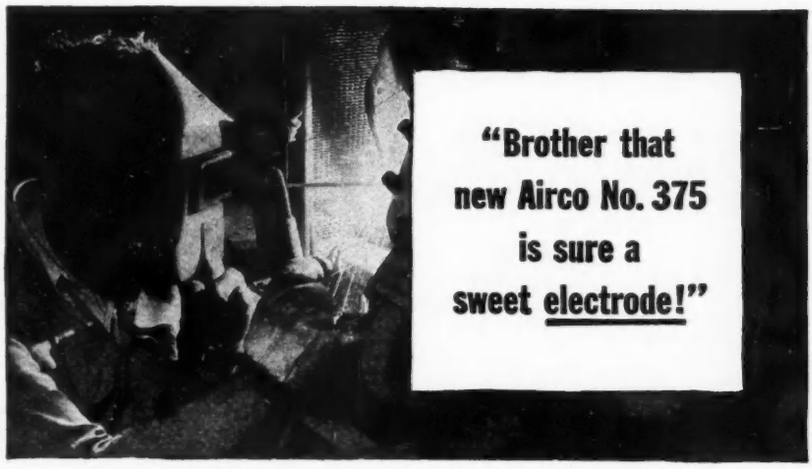
Expressed in current dollars, 1947 highway construction appears high, but it is important to place this volume in proper perspective. Any appraisal of the current status of highway work should take price changes into account. A better evaluation of the 1947 performance may be found when highway dollar activity over the years is expressed in 1939 dollars, giving a direct comparison of physical volume of construction.

Actually, the physical volume of highway construction in 1947, in terms of 1939 prices, is about $600 million. Although this is 43 per cent more than in 1946, it should be noted that the physical volume recorded in 1946 was the smallest in any peacetime year since 1920. Despite the increase in 1947, physical volume was still 29 per cent less than in 1939 and less than half the peak years of 1930 and 1931. In fact, the 1947 physical volume of highway construction was 31 per cent less than the yearly average during the prewar period from 1925 through 1941. The physical volume of highway work done in 1947 was actually less than recorded in any of the 17 years prior to the war except for 1935.

Contracts awarded for highway construction in 1947 were valued at $1,096 million or 18 per cent above the $928 million awarded in 1946. Nearly 60 per cent or $648 million were awards in the federal-aid programs, a 25 per cent increase over the previous year. State highway contracts with no federal funds involved increased 12 per cent over the 1946 volume to total $257 million. Contracts awarded for road work by counties and municipalities in 1947 showed the smallest over-the-year gain, 6 per cent, to total $192 million.

### Truck Traffic At New High

A recent survey by PRA shows that truck traffic is increasing faster than any other type of highway transportation. Figures for 1947, although incomplete, show that travel by all type trucks and combinations was up 15.6 per cent over 1946 and 16 per cent over 1941. Goods moved by truck in 1947 totaled 86 billion ton miles, an increase of 17 per cent over the previous year and 46 per cent over 1941. Average of loads hauled increased 37 per cent since 1941 to an average of 4.36 tons. The number of axle loadings of 22,000 pounds or more last year, more than doubled over the 1946 figure. Frequency of axle loadings of 20,000 pounds and up increased 70 per cent and of 18,000 lb. and up increased 33 per cent.


**"— the best we have found on the market for making machinable cast iron welds"**

...says B. A. Canning, owner of Montgomery Welding Service (Jersey City, N. J.), a specialist in automotive repair —"all out" praise for the NEW Airco No. 375.

This all-position, AC-DC electrode produces machinable welds of high tensile strength and great ductility.

Smooth flowing, thin spreading, this exceptional NEW electrode will take a multiple pass without separating or pulling away from the cast iron. It is recommended for welding cracked or defective cylinder blocks, heads, transmission housings, clutch plate fingers, and similar automotive repair jobs.

But try this NEW electrode yourself — AT OUR EXPENSE! Send in your request for a FREE sample to the Airco sales office or authorized dealer nearest you — or, if you prefer, use the coupon below.

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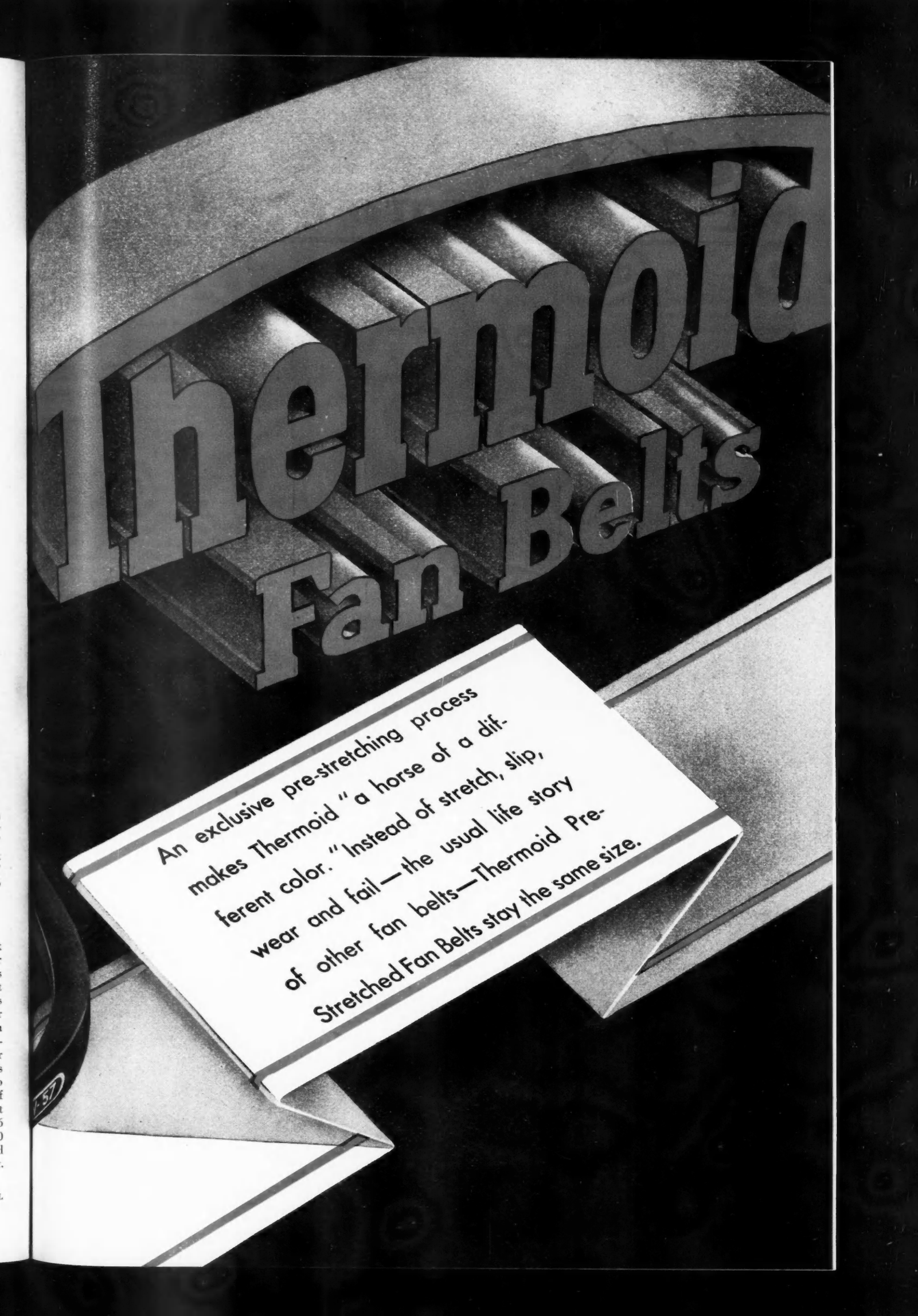
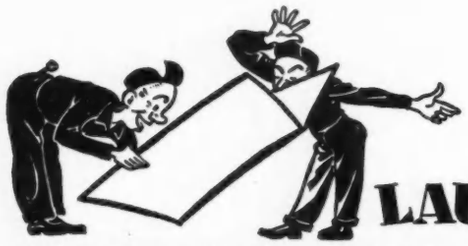
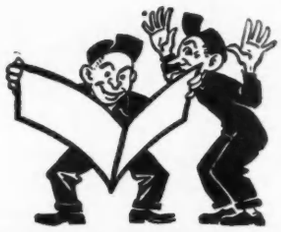

Thermoid
Fan Belts
An exclusive pre-stretching process makes Thermoid "a horse of a different color." Instead of stretch, slip, wear and fail—the usual life story of other fan belts—Thermoid Pre-Stretched Fan Belts stay the same size.



# LAUGH IT OFF



1st Mechanic: "What kind of a dentist is Dr. Pullum?"

2nd Mechanic: "Oh, he's great. Every time he extracts a tooth, he gives you a glass of whiskey."

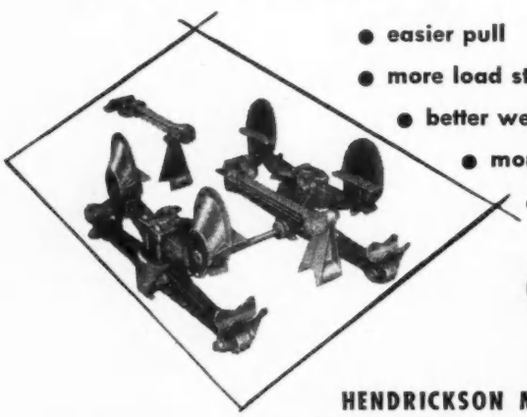
1st Mech.: "Do you still go to him regularly?"

2nd Mech.: "Not any more. I've run out of teeth."

C C J


MORE PROFIT

These advantages make *more profit* for operators of Hendrickson-equipped vehicles:



- easier pull
- more load stability
- better weight distribution
- more fuel economy
- reduce road shock

HENDRICKSON TANDEM

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb), Illinois

*Follow the Leader!*


*Warden: "I've been in charge of this prison for 10 years, and that calls for a celebration. What kind of a party would you boys suggest?"*

*Prisoners: "Open house!"*

C C J

*Safety Sadie (on bathing beach): "Harriet ought not to go in the water alone. She was nearly drowned yesterday and Ernest had to use artificial respiration."*

*Catty Cora: "You mean Harriet had to use artificial drowning!"*

C C J

A group of prohibitionists looking for evidence of the advantage of total abstinence were told of a man 90 years of age who had never touched a drop of liquor. They rushed to his home to get a statement. After hearing his story they propped him up in bed and guided his feeble hand so that he might sign on the dotted line. As this was being accomplished a violent disturbance was heard outside; scuffling feet, furniture falling and smashing dishes.

"Good heavens, what's that?" gasped one of the group.

"Oh," whispered the old man as he sank exhaustedly into his pillows, "that's Pa. He's drunk again."

C C J

Bill, the burglar, was hard-boiled. He had been shot at hundreds of times and hit by at least a dozen bullets and had survived them all. At last, he was captured and condemned to die in the electric chair.

The fateful day arrived and Bill was taken to the execution room and strapped in the chair. It took six men to do it and they had their hands full subduing him. After 10 minutes had passed Bill's air of bravado began to fade. He turned a little pale and seemed nervous.

"Come on," he growled. "turn on the juice and get it over with."

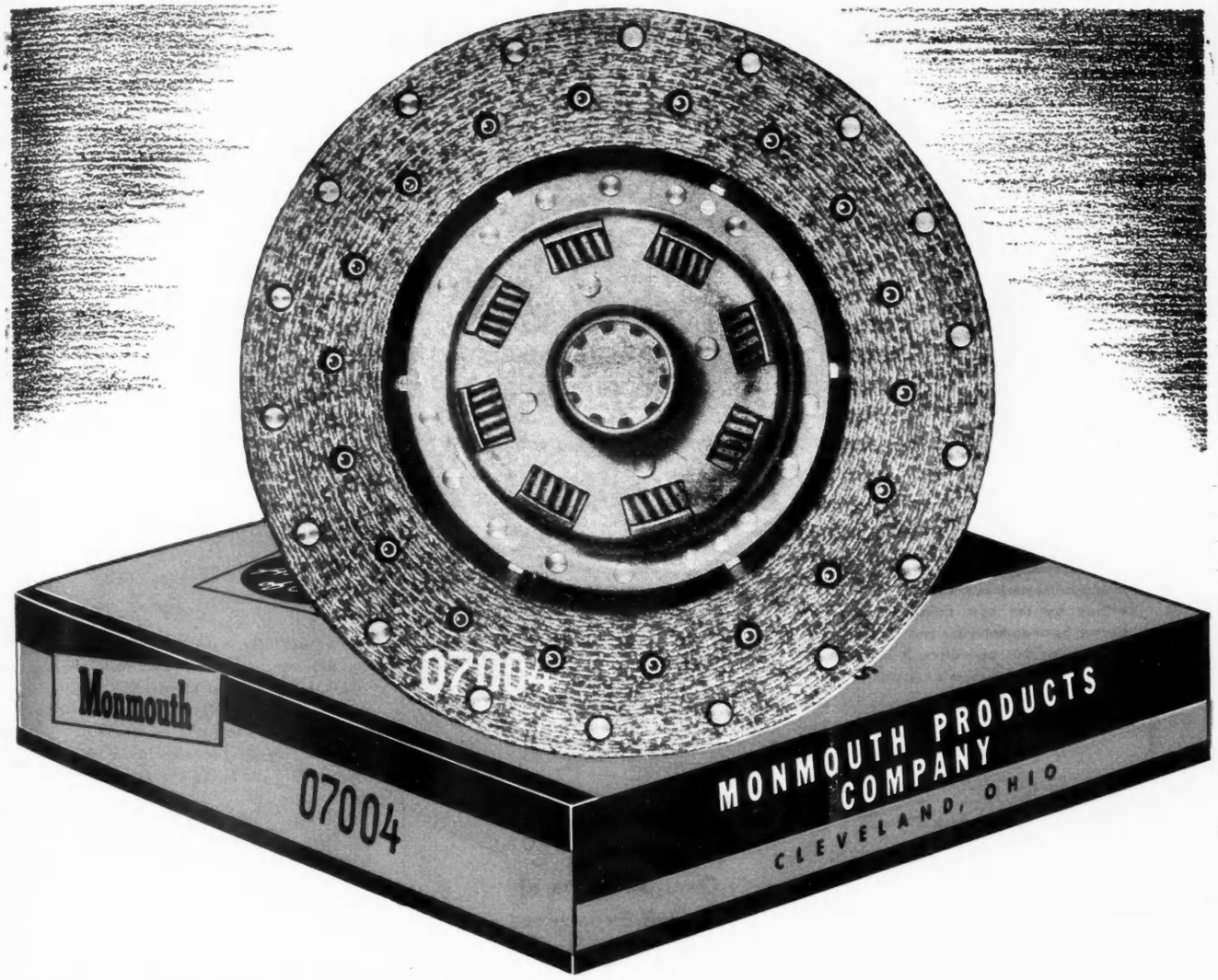
"T-turn on the juice?" stuttered the electrician, in an awed voice. "Man, it's been on for five minutes."

C C J

A group of state capital big-wigs were making a tour of the state's insane asylum. An attendant was acting as guide for the group. Approaching the door of an extra large room in one of the wings, the attendant remarked: "And this is the room reserved for crazy auto mechanics."

Stepping forward in a body, the visitors surveyed the room which was apparently empty save for three long neat rows of beds. One of the politicians, an erstwhile garage operator, who had long extolled the merits of the auto mechanics trade, proudly

(TURN TO PAGE 178, PLEASE)




# For tough clutch jobs think first of *Monmouth*

NAPA Assurance of Quality

*Your NAPA Jobber is a Good Man to Know!*

The Monmouth Flexible Center Clutch Plate is the heart of the power transmission system in any automotive vehicle.

In four respects it is the most efficient device ever created for this purpose—first in absorbing shock—second in dampening vibration—third in power transmission—fourth in length of service life.

Its patented features are exclusive and cannot be duplicated. Construction is tops with forged steel hub, finest spring steel segments and springs. Facings supplied according to original equipment specifications. Individual inspection of each plate before packing includes test for run out. For clutch replacement jobs that satisfy, specify Monmouth Clutch Plates and Parts from your nearest NAPA Jobber.

**MONMOUTH PRODUCTS COMPANY • CLEVELAND 3, OHIO**

**FOR ENGINE BEARINGS**
**CLUTCH PLATES AND PARTS**
**CHASSIS PARTS**

**Monmouth** Trade Mark *is the name*

# From the skyways to the highways

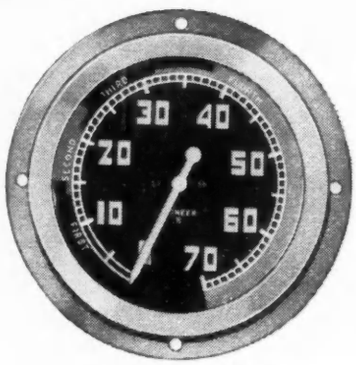
# Eclipse-Pioneer

## speedometers or tachometers assure "AIRCRAFT ACCURACY" and

# LONG RANGE ECONOMY

### Over 300,000 Miles of Service-Free Operation

What a performance record! More than a third-of-a-million miles of accurate speedometer operation *without service or maintenance.* That's the record written by the new Eclipse-Pioneer* Electric Speedometer for one of America's largest bus operators. It adds up to extra profitable miles of operation—fewer costly shop hours.



### Over 30 Years of Aircraft Experience

Eclipse-Pioneer Electric Tachometers are built to exacting aviation standards of accuracy and performance. That's why they can be counted on for precise, trouble-free operation day after day, mile after mile.

Efficient bus or truck operation, day in and day out, is largely dependent on engine operating conditions. One of the surest safeguards to maintaining top engine performance, is to eliminate overspeed conditions. Eclipse-Pioneer Aviation Quality electric instruments give engine or vehicle speed to your operator with absolute accuracy, for his most efficient use of the engine. And, thanks to Eclipse-Pioneer's 30 years of aircraft experience, these instruments are built to *last*—your assurance of real long range economy! For better bus efficiency, for longer truck operation, check these new aids to top performance.

*REG. U. S. PAT. OFF.

# Eclipse-Pioneer

TETERBORO, NEW JERSEY

BUILDERS OF PRECISION INSTRUMENTS FOR THE AVIATION INDUSTRY FOR OVER 30 YEARS!

DIVISION OF Bendix AVIATION CORPORATION


## Laugh It Off

(CONTINUED FROM PAGE 176)

remarked, "Well, we might as well have this room closed off, they'll never get a crazy auto mechanic here. That's one profession that won't drive a man nuts."

"That's what you think, mister," interposed the attendant. "This room is filled 100 percent with crazy mechanics. They're all under the beds repairing."

C C J

*It was a hot afternoon at the ball park. An enormous fellow stood over the plate and an equally large catcher stood behind them. The count was one and one.*

*The shrimpy umpire, watching the pitch sizzle across a corner, yelled "Two!"*

*"Two what?" snarled the catcher, mashing his mask into the umpire's face.*

*"Yeah, two what?" growled the batter, raising his bat.*

*The umpire looked from one brute to the other.*

*"Too close to tell!" he said.*

C C J

*The hillbilly, with a dizzy blonde hanging on his arm, took the pen handed him by the hotel clerk and signed the register with an X. With a thoughtful look on his face, he hesitated, then circled the X.*

*"A lot of people sign with an X," said the clerk, "but that's the first time I've ever seen it circled."*

*"'Taint nuthin' so dadburn odd about hit," retorted the hayseed. "When I'm a'runnin' around with wild women I don't use my right name."*

C C J

A new waiter at the Colony Club served a woman in extreme decolete. As she stooped to recover her napkin, a part of her anatomy popped out. The waiter adroitly put it back for her.

The captain noted this and called the waiter over. "Francois, where did you work before you came here?" he asked.

"Oh, at the Marguery, the Ambassador, at Pierre's—you know where I worked—you have my references."

"Did you do that sort of thing where you worked before?" asked the captain.

"Certainly, when necessary," said Francois.

"Well, you are now working at the Colony Club. Hereafter when a similar situation occurs, please use two warm spoons."

C C J

Two chinese and an Irishman were arrested for fighting, and stood before His Honor.

Judge (to first prisoner): "What is your name?"

Prisoner: "My name is Ah Wah."

Judge: "Ah Wah, thirty days."

Judge (to second prisoner): "What is your name?"

Prisoner: "My name is Ah Sing."

Judge: "Ah Sing, thirty days."

Judge (to Irishman): "What is your name?"

Irishman: "Ah Hell, give me thirty days, too."

# To Truck Trailer Suppliers

**In their very first year, Sealco Relay Emergency Valves have rolled up millions of miles for hundreds of exacting users. The positive claims we have made for this safety device are substantiated by this service record.**

***Consider the following:***

**Sealco Relay Emergency Valves give s o f t e r, smoother, more sensitive braking, and f a s t e r application. With a Sealco there's absolutely no truck braking in advance of trailer, and no trailer tank pressure loss from leakage. This means lower upkeep cost.**

**With a Sealco there's no necessity for removing valve for servce. A compact, replaceable cartridge changes the working parts in five minutes, even on the road.**

**Sealco air brake equipment is available through all recognized trade suppliers.**

**Sealco prices are under those of similar equipment.**

**A 50% trade-in allowance for old valves of any make.**

**Excerpts from letters from Sealco users say:**

**"The nicest, smoothest and most velvety application we have yet encountered."**

**"They will save the truck trailer operator a great deal of trouble."**

**"Much smoother and much more positive."**

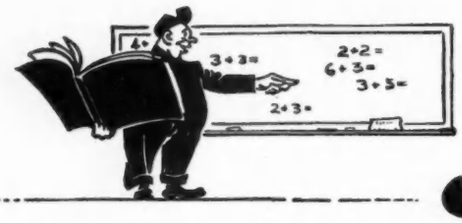
**"It is the intention of our company to standardize on Sealco."**

**Send coupon for more interesting facts.**

Name .....
Title .....
Company .....
Address .....

SEALCO

**HOMER T. SEALE, INC. - 5330 Alhambra Avenue, Los Angeles 32, Calif.**
**AIR BRAKE EQUIPMENT**




# CCJ QUIZ

We're looking for someone to set the world afire with the correct answers to all ten of these CCJ Quiz Questions. All of them concern fire precautions that should be taken by every truck operator. Check your choices with the answers on page ____.

**1.**

Here's a little stratagem that will often take care of an engine fire quick. If while driving along, you notice your engine is on fire, do this:

a. Stop and go into reverse.
b. Put the gears into neutral and press the accelerator down as far as it will go.
c. Choke the engine and then turn off the ignition.

**2.**

Your engine stays on fire. What are you going to do now?

a. Open the hood wide to get the cooling action of the air.
b. Keep the hood closed and shoot the extinguisher material through the hood louvers.
c. Douse the engine with water.

**3.**

The two fire extinguishers most commonly seen around buildings are the soda-acid and the foam types. Why do these fail to meet I.C.C. requirements for use on trucks?

a. Insufficient range of stream.
b. Capacity too small.
c. They are subject to freezing.
d. Neither is effective against gasoline fires.

**4.**

Leaking gasoline is always dangerous. You might avoid a fire if you know that vaporized gasoline:

a. Mixes with air and spreads over a wide area.
b. Stays close to the ground.
c. Is lighter than air and rises.

**5.**

You are taking the biggest chance on your tires catching fire when they are:

a. Over-inflated.
b. Under-inflated.
c. Normally inflated.

**6.**

In case your tires do catch fire, it is good to know that the best way of handling a tire fire is to:

a. Drench the tire with water.
b. Whatever you do, don't use water.
c. Use a carbon dioxide extinguisher.
d. Smother it with sand.

**7.**

A frequent type of fire extinguisher around docks and garages is the foam type extinguisher. The foaming agent in many such extinguishers is:

a. Sodium chloride.
b. Hydrochloric acid.
c. Ivory soap.
d. Licorice extract.

**8.**

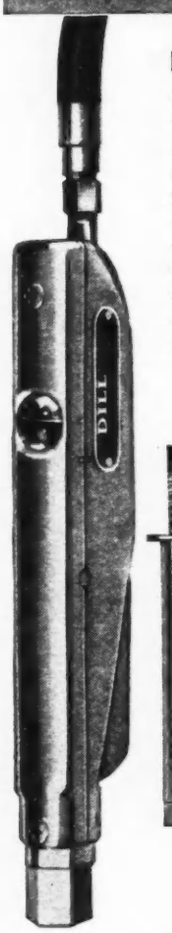
When you're hauling inflammable liquids, I.C.C. regulations require that the cartons

(TURN TO PAGE 183, PLEASE)


HERE IT IS!

THE NEW AIR LINE GAUGE

THAT'S *Always Accurate Always "in Order"*




**New DILL *Evr-Rite* Air Line Gauge Service**

Now, with the new low pressure tires, *accurate* inflation is more vital than ever before. Here's the air line gauge you can depend on. The new Dill Evr-Rite is more than a better inflator — it's a *service* that maintains gauge *accuracy always.* No "out of order" — your air line is always ready to use — no troublesome maintenance and expense. And that's not all. The Dill Evr-Rite is light in weight — easier to handle. Just a squeeze of your hand operates the lever that controls inflation. You see, instantly, the pressure reading shown BIG in the magnifying lens. In every way, this is the equipment you want for your air line. Be sure to order a Dill Evr-Rite, today, from your wholesaler, tire or oil company supplier.

**Only DILL *Evr-Rite* has all these advantages**

✓ **SPARE GAUGE UNIT** — Whenever the gauge in the inflator becomes inaccurate, you simply replace it with the spare gauge unit and mail the inaccurate gauge to the factory for re-calibration. The spare gauge provides a proving gauge to test the accuracy of the gauge in the inflator.

✓ **EASY TO HANDLE** — Light in weight, compact, sturdy — just right for convenient, easy handling.

✓ **EASY TO READ** — A magnifying lens shows the pressure figures BIG — makes reading quick and easy.

✓ **REGISTERS AUTOMATICALLY** — Pressure reading registers instantly as chuck is applied to valve.

✓ **FULL PRESSURE RANGE** — Gauge calibrations are 15 to 55 lbs. in 1 lb. units, and 55 to 125 lbs. in 5 lb. units.

**THE DILL MANUFACTURING COMPANY**

700 East 82nd St. Cleveland 8, Ohio

Branch: 1011 S. Flower St. Los Angeles 15, Calif.

DILL
Reg. U.S. Pat. Off.
Evr-Rite
Trade-Mark
AIR LINE GAUGE SERVICE

No. 8787 ONLY $11.95

Complete with inflator spare gauge unit, swivel hose and chuck.

## CCJ Quiz

(CONTINUED FROM PAGE 180)

be prominently identified with a:

a. Red label.
b. Yellow label.
c. White label.
d. Green label.

**9.**

You know that water is of little or no use in putting out a gasoline or oil fire, but why?

a. The water re-acts with the oil to make it even more inflammable and longer burning.
b. The water merely sinks to the bottom and the surface of the oil continues to burn.
c. The heat from the oil or gasoline vaporizes the water into steam.

**10.**

If you're driving a gasoline tank truck, you had better be particularly cautious about fires and explosions. Is it true that an empty tank truck is more dangerous than a full one?

a. Yes.
b. No.

## Quiz Answers

1. b. Shift into neutral and speed up the engine. The extra gasoline burned will require a terrific amount of air for its proper combustion, causing a rush of air into the carburetor. This rush of air is often sufficiently strong to starve the fire.

2. b. On engine fires, it's best to open the hood as little as possible to prevent flare-ups. You can usually get at the fire through the louvers, the radiator, or up under the engine.

3. c. The charge in these extinguishers will freeze if exposed to low temperatures. I.C.C. regulations require a type which does not require protection from freezing.

4. b. Gasoline vapor is heavier than air and will hug the ground. Watch where you throw lighted matches and cigarettes.

5. b. Tires that are under-inflated or flat are liable to run hot and flame up when you stop.

6. a. Plenty of water is needed to cool the tire even after the flame is out. If the fire is merely smothered, you take the risk that it may flare up again. To be safe, always remove the burned tire as soon as the flame is out.

7. d. Licorice extract. This licorice creates a thick layer of foam which floats on the surface of even an oil fire and shuts out the oxygen supply.

8. a. Flammable liquids with a flash point of 80° F. or lower and flammable compressed gases must bear a red label.

9. b. The water sinks and the oil or gasoline floats, continuing to burn. The water may even spread the gasoline or oil or cause it to overflow its container.

10. a. Usually yes. You run much more risk of going "boom." A static spark is far more likely to cause an explosion over an empty tank than a full one.

## JOBSERVATIONS

*by BUSTER ROTHMAN*

**All that time is lost which might be better employed.**

★ ★ ★

**The hardest thing to give is in.**

★ ★ ★

**All things come to him who hustles while he waits.**

★ ★ ★

**Two good openings for a young man are his ears.**

★ ★ ★

**A bankrupt is just a fellow who didn't mind his owin' business.**

**It's the little things that annoy us. We can sit on a mountain but not on a tack.**

★ ★ ★

**Familiarity breeds attempt.**

★ ★ ★

**Money can be lost in more ways than won.**

★ ★ ★

**A thing begun is half undone.**

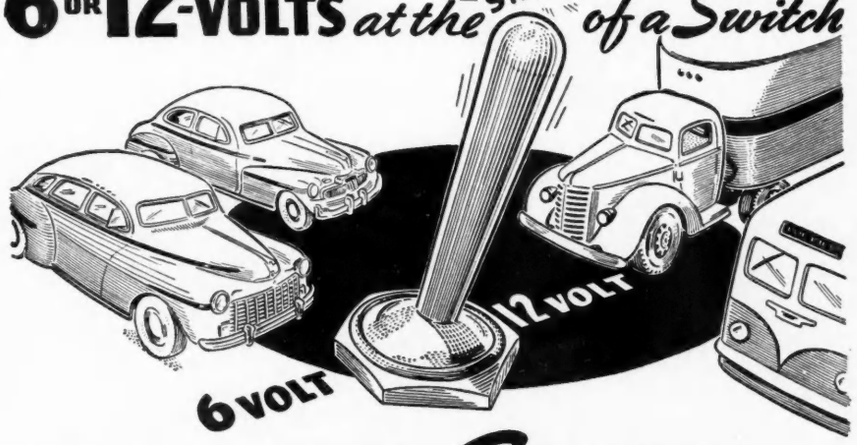
★ ★ ★

**Be cheerful and resist disease: the surly bird catches the germ.**

★ ★ ★

**It's the quick thinker who becomes leader—he who hesitates is bossed.**

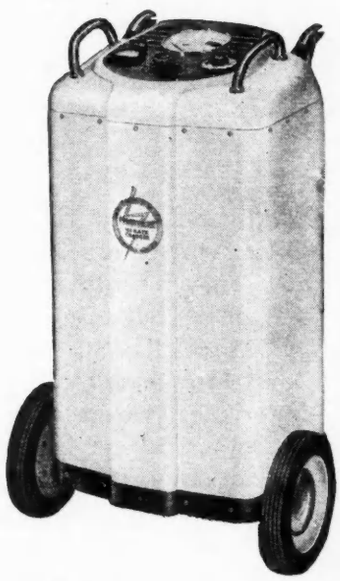

6 OR 12-VOLTS at the SNAP of a Switch




MARQUETTE
REGISTERED U.S. PAT. OFFICE

100 AMPERE Supercharger And TESTER

Marquette Hi-Rate "188" Supercharger enables you to give "Hi-Rate" 100 ampere battery service to any car or truck on the road. At the snap of a switch, the entire testing and charging circuit is converted from 6 to 12-volts. Keeps batteries in top flight condition *without* removing from car, truck or bus.



**HI-RATE "188" FEATURES**

- Tests *Before* Charge
- 30 Second Test
- Shows *Exact* Charging Time
- Dual Selenium Rectifiers
- Dual Heavy-Duty Transformers
- Full 100 Ampere Charging Rate
- 6 or 12-volts at snap of a switch
- New type Circuit Breaker projects both Battery and Charger
- High Rate Discharge for Desulphating

SOLD EXCLUSIVELY THRU THE NATION'S LEADING DISTRIBUTORS

MARQUETTE
REGISTERED U.S. PAT. OFFICE

Charging EQUIPMENT
HI-RATE "180" PORTO-FAST
TRICKLE-MATIC WALL CHARGERS

MARQUETTE MFG. CO., INC., Minneapolis 14, Minn.

# FLEETMAN'S LIBRARY

**A Review of Booklets and Catalogs Fleetmen Will Find Helpful**

3M Adhesives in Industry, a 28-page brochure offering research help in choosing adhesives, sealers and coatings. Contains 40 pictures, 18 case histories and lists 26 formulae offered by the company. Write Minnesota Mining and Mfg. Co., 901 Faquier Ave., St. Paul 6, Minn.

Hastings Aero-Type Spark Plugs, a 22-page catalog presenting features of the new spark plug. Specifications for trucks, cars, tractors, and all types of engines are provided. Spark Plug Div., Hasings Mfg. Co., Hastings, Mich.

Hobart Arc Welding News, the latest issue featuring photographs and articles on welding. The publication will be mailed free of charge to those interested in welding. Write The Hobart Brothers Co., Troy 1, Ohio.

Underbody Coating Business, a 16-page booklet telling in detail the story of the company's research and manufacture of sound deadeners for bodys. Illustrations, text and charts show how to do an undercoating job. J. W. Mortell Co., Kankakee, Ill.

Bear Idea Book, a larger, completely revised edition of the original book featuring hundreds of illustrations showing how to establish a safety test service. The publication provides shop layouts, locations, interior and exterior arrangements for the convenience of the reader. Bear Mfg. Co., Rock Island, Ill.

An Ideal Washroom Maintenance Service, a 12-page brochure covering in detail the washroom service maintained by West. Write West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y.

Portable Crankshaft Grinder, a two-color folder describing in detail the new engine rebuilding tool. Copies may be obtained by writing H. G. Gros, sales manager, Waterbury Tool Div. of Wickers, Inc., Waterbury, Conn.

Air Motor Bulletin, BM-20, published by The Bellows Co., Akron, Ohio, showing various types of air motors available in the four power rated sizes. Accessories and mountings are also illustrated. Write the above company at 109 N. Union Street.

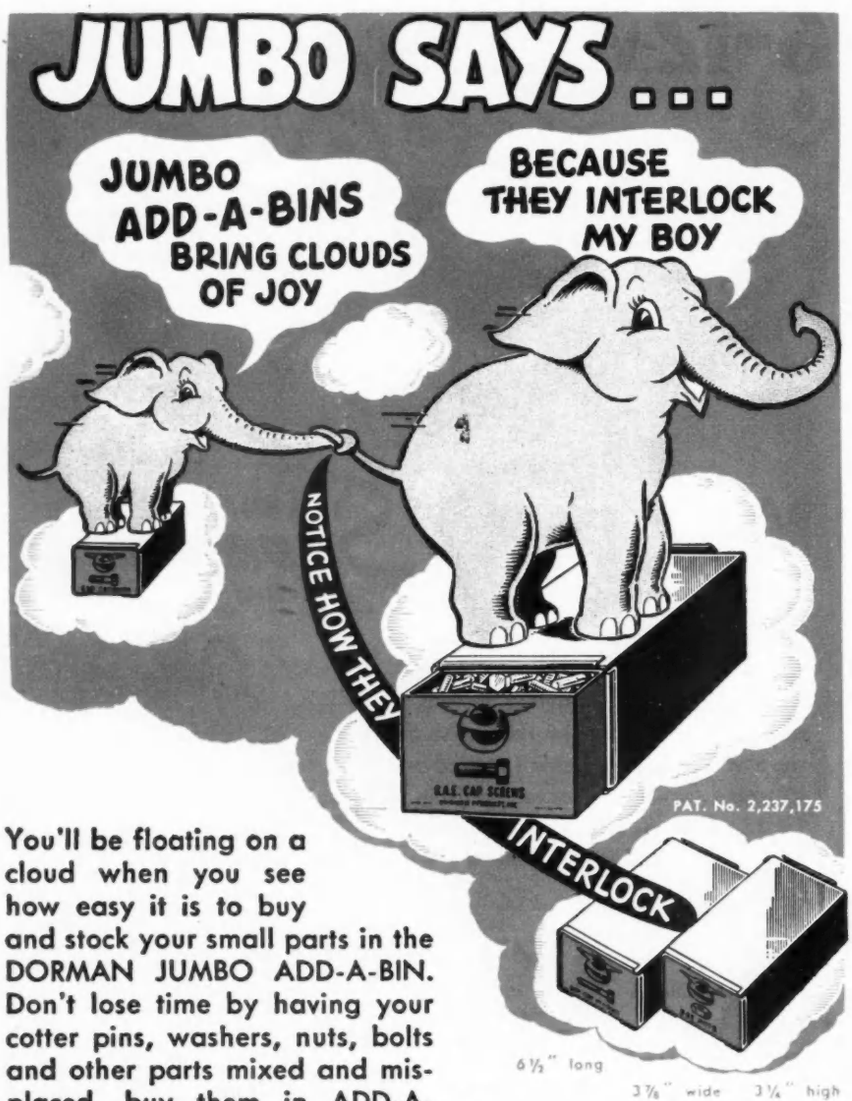
Precision Bearing Catalog, a 40-page publication listing connecting rod, camshaft and main bearings for nearly all passenger cars and trucks. Write the Johnson Bronze Co., New Castle, Pa.

Safety Test Facts, a 20-page booklet listing pertinent information on traffic safety and details on the safety testing of motor vehicles. Write Bear Mfg. Co., Rock Island, Ill.

Four Wheel Drive Folder, a four-page brochure containing complete information and illustrations on the detachable chain-and-sprocket four-wheel drive available from The Trucktor Corp., 156 Wilson Ave., Newark 5, N. J.

Mack in the Timber Industry and Mack in the Oil Fields, two informative booklets showing Mack trucks at work in these branches of industry. The publications cover trucks and tractors, four-and six-wheel vehicles, powered by gasoline, diesel and butane fuel. Write Mack Trucks, Inc., 350 Fifth Ave., New York 1, N. Y.

Rollway Bearing Catalog, a 16-page publication covering the company's new precision cylindrical roller bearing with a steel retainer. Catalog No. 847 is now ready for distribution together with a list of sizes now in production. Write Rollway Bearing Co., Inc., Syracuse, N. Y.


You'll be floating on a cloud when you see how easy it is to buy and stock your small parts in the DORMAN JUMBO ADD-A-BIN. Don't lose time by having your cotter pins, washers, nuts, bolts and other parts mixed and misplaced, buy them in ADD-A-BINS. You buy the parts — you get the bins. Two or two-hundred interlock equally well. Come filled with any of over 4000 DORMAN PRODUCTS.

As Jumbo Says: "THEY INTERLOCK!"

The Quality Line That's Easy to Find

DORMAN PRODUCTS

DORMAN PRODUCTS Inc.
CINCINNATI, OHIO

*All Car Wheels on the New General Motors Train were Dy-Namically Balanced on Bear Equipment.

the "Train of Tomorrow" HAS IT!*

A SMOOTHER RIDE

Your car can HAVE IT!**

**On the Rails as on the Highways,
Bear Dy-Namically Balanced Car Wheels are the Choice of Those
Who Require the Finest in a Smooth Ride... the Utmost in a Safe Ride!
For car owners, Bear Dy-Namically Balanced Wheels save tires,
too ... make steering so much easier, less tiring.

Look for the Bear sign for ..

BEAR Dy-Namic Balancing at your neighborhood repair shop

*Bear Safety Service also covers Wheel Alinement, Brake Testing, Headlight Testing, Frame and Axle Straightening.*

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BEAR MFG. CO.
Dept. C-3, Rock Island, Ill.

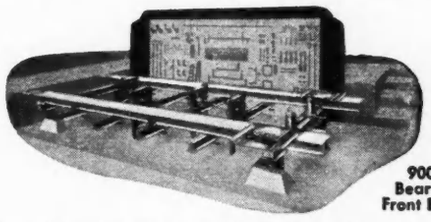
Rising COSTS-PER-MILE

—Make this Bear Money-Saving Message from the POST more important than ever before for FLEET OPERATORS

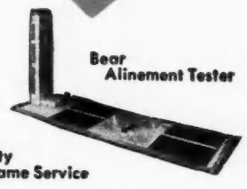
Bear Service always has been a big cost-reducer for Fleets. Under today's conditions, with cars and trucks overage, with synthetic tires and recaps, it's easier than ever for the Steering "Wobblies" to crawl in and do their damaging, dangerous, costly destruction. Stop 'em FAST with Bear Safety Service by making arrangements with a shop that displays the Bear Sign... or by installing Bear Equipment in your own shop. Then watch that cost-per-mile go DOWN ... Down... down. Write BEAR MFG. CO., Dept. C-3, Rock Island, Illinois.

Bear Heavy-Duty Dy-Namic Wheel Balancer

R 2548



900-830 Bear Heavy-Duty Front End and Frame Service



Bear Alinement Tester

...JEROME W. BRUSH, JR., as assistant director of marketing and merchandising, a newly-created department of Raybestos-Manhattan, Inc., with offices at 120 Broadway, New York. DAVID E. CUNNINGHAM will succeed Mr. Brush as marketing supervisor of The Raybestos Div., Bridgeport, Conn.

...CRAWFORD H. GREENEWALT as president of E. I. du Pont de Nemours & Co. WALTER S. CARPENTER, JR. is now chairman of the board following the retirement of Lammot du Pont from the latter post.

...A. V. PETERSON as district sales manager of the Southeastern district, Par Compressor Div., Lynch Corp., with headquarters in Atlanta. CAL PIERCE, former Southeastern sales manager, goes to San Francisco where he heads the West Coast district.

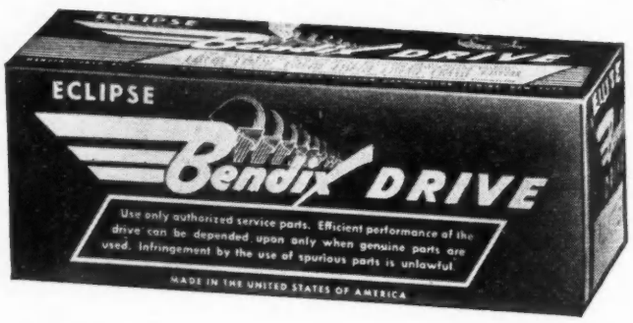
...JAMES W. KELLEY as sales engineer in Tulsa, Okla. office of Vickers, Inc.

...ERIC SCHADE as sales manager of the Automotive Division of the Grote Manufacturing Co., Bellevue, Ky.

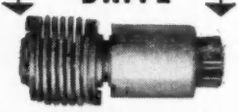
...CLARENCE COLEMAN, promoted to the position of regional manager of the Arizona-Nevada district Kelit Products, Inc.

...M. G. BARNES and K. E. KETZEL as Studebaker truck representatives in St. Louis and Detroit respectively.


# This Box is Worth Money to You!


ECLIPSE
Bendix DRIVE
Use only authorized service parts. Efficient performance of the drive can be depended upon only when genuine parts are used. Infringement by the use of spurious parts is unlawful.
MADE IN THE UNITED STATES OF AMERICA

INSTALL THIS DRIVE



RETURN THE OLD ONE IN THIS BOX

THEY'RE WORTH **MONEY!**

## ...And pays your customers in greater satisfaction

When you replace with a genuine Bendix* Drive, you get a double return in money. Your customer pays you cash, of course, for the installation of the finest drive you can sell him. Furthermore, the old one is worth money to you when you return it to your Bendix Drive Central Distributor.

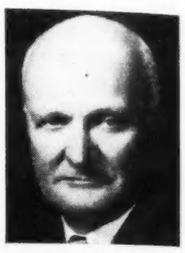
The old Bendix Drives are scrapped—That is your assurance that the Bendix Drive you sell is brand new and thoroughly efficient. *Always* replace with the genuine Bendix Drive. *TRADE MARK

Genuine Parts give Genuine Service

**Bendix Drive**

ECLIPSE MACHINE DIVISION of ELMIRA, N. Y.

Bendix AVIATION CORPORATION

...WILLIAM S. JAMES, former director of research of the Ford Motor Co. and now vice-president in charge of engineering of the Fram Corp., Providence, R. I. He is a past president of the SAE.

...WM. E. SIMONS, general sales manager of the Heil Co., Milwaukee.

...LYLE DAVIS, Chicago branch manager of the Lubricants Division of the Macmillan Petroleum Corp., promoted to the position of midwest division sales manager, in charge of sales and service for 19 states.

...ROBERT DUNN, promoted from assistant general sales manager of the Lubricants Division of the Macmillan Petroleum Corp. to sales manager of the Eastern Division of that corporation.

...WILLIAM J. CRONIN as managing director of the Automobile Manufacturers Association. He succeeds GEORGE ROMNEY who becomes assistant to the president of Nash-Kelvinator Corp.

...JACK A. TAYLOR as sales promotion manager of Perfect Circle Corp. Since 1945 he has been handling special assignments in the corporation's sales division, most recent of which was the introduction of Perfect Circle's Nurlizing process.

...RAY F. CHRISTOPHER as vice president in charge of sales for Sun Electric Corp.

(TURN TO PAGE 188, PLEASE)

# Special delivery for a $33,000 package

MOVING giant nylon hosiery knitting machines like the one pictured above used to be a costly, time-consuming job.

The $33,000 knitter, 53 feet long, weighs around 36,000 pounds and is made up of approximately 300,000 delicate parts. Formerly, when moving these machines from factory or mill, they had to be disassembled ... parts carefully packed, shipped and reassembled. The job took as much as 15 weeks.

Then an alert moving engineer consulted Union Metal engineers. They recommended using a trailer equipped with a Hoobler Undercarriage. Because of the Hoobler Undercarriage's great capacity and precision alignment, the nylon knitter could be moved *as a unit*—safely. ***Moving time was reduced from weeks to days.***

Hoobler Undercarriage provides many benefits that increase trucking profits and reduce operating expenses. It allows a trailer to take *tight turns in a radius less than its length.* There's minimum tire scuffing. Frangible loads ride safer because flexible, multiple support absorbs practically all road bumps.

Simple in design and construction; quickly inspected and serviced; designed for all over-the-highway trailers 28 feet in length and up. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

*Builder of The Hoobler Undercarriage*

## Introducing

(CONTINUED FROM PAGE 186)

...ROBERT E. BUSEY, who has been acting chief engineer for Willy-Overland Motors, now promoted to chief engineer.

...DALE D. SPOOR as manager of the newly formed equipment sales department of Air Reduction Sales Co. IRA B. YATES becomes manager of arc welding and supplies sales and J. F. CARROLL becomes manager of apparatus sales.

...T. C. HUXLEY, vice president of Diamond T Motor Car Co., appointed director of sales for the company. J. L. KRICKL, appointed sales manager and J. G. MORTENSEN, named assistant sales manager for the company.

...SAMUEL SCHAEFFER, named manager of advertising and sales promotion for the Automotive Division of Thomas A. Edison, Inc., West Orange, N. J.

...R. F. TEELING of Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J., appointed manager of the local sales branch formerly known as "New Jersey Sales", and which will now function as "North Jersey Branch."

...C. J. JEFFERSON as Detroit regional manager of the Dodge Division, Chrysler Corp., replacing JOHN G. GRAHAM who has been transferred to other duties.

...WILLIAM J. DEEG appointed district manager of the Florida territory for Toledo Steel Products Co., Toledo, Ohio.

...JAMES A. WHEATLEY, JR., Chicago district manager, promoted to replacement sales manager for the U. S. Asbestos Division of Raybestos-Manhattan, Inc., Manheim. Pa. His headquarters will be at Manheim.

... KENNETH B. COVERT, appointed to the position of sales manager of the Fire Extinguisher Division, Ansul Chemical Co., Marinette, Wis.

... R. K. MCLEAN, appointed manager of the Highway Trailer Co.'s sales and service branch in St. Louis, Mo.

... N. J. DUBAK, appointed manager of the Highway Trailer Co.'s New York branch.

... G. A. BORCHIK, appointed to the position of manager of replacement sales for the Willard Storage Battery Co., Cleveland, Ohio.

... WALTER C. LEITCH, elected vice-president and general manager, The Aro Equipment Corp.

...DAVID S. CRAVEN, former general service manager of the Cummins Engine Co., Inc., Columbus, Inc., appointed director of maintenance of the McLean Trucking Co., Inc., Winston-Salem, N. C., a large common carrier.

...HARRY F. GRAY appointed United States manager for replacement sales of The Wel-Ever Piston Ring Co., Toledo, Ohio.

(TURN TO PAGE 190, PLEASE)

DON'T BE A
Goat
How about it, boys? Whether it's your fault, or not, you're the goat when you drop a trailer. Even usual coupling fuss and bother are grief enough—especially when it's cold or rainy—but accidental uncoupling is really bad business.
SAFETY FIRST
That's why—when ASF engineers put 40 years of railroad coupler experience to work in designing a better 5th wheel—safety was their goal . . . safety that stays safe . . . safety with ease of operation. That's how Safety 5th Wheels got their name. They can't unlock accidentally. Yet a single, simple, one-hand movement is all that it takes for uncoupling.
EXPECT THE BEST
You'd expect the Nation's leading producer of cast steel for transportation purposes to build a 5th wheel right. And you'll not be disappointed. Before you equip another tractor, get the facts on Safety 5th Wheels. Types for every service. Automotive Division, American Steel Foundries, 400 N. Michigan Ave., Chicago 11, Ill.
The new Series 400-C. Dealers and distributors wherever you go.
Sockets on the plate fit well down over the trunnions so that tractor pull is transmitted in a straight line. Plate won't "lift" under power or braking.
A·S·F Safety 5th WHEEL

*She has to take chances*

# . . . YOU CAN PLAY SAFE

## when you install piston rings!

You do just that—*play safe*—when you install Porous Chrome* Piston Rings in your trucks or buses! These amazing Koppers American Hammered Rings have established spectacular mileage records . . . delivered full efficiency during every record-breaking mile in millions of miles of the toughest kind of fleet service. They reduce cylinder wear by half . . . increase piston ring life four and *even five* times. Ask your American Hammered jobber for Porous Chrome piston ring sets. Koppers Company, Inc., Piston Ring Division, Box 626, Baltimore 3, Maryland.

**IN EVERY SIZE • OF EVERY TYPE • FOR EVERY PURPOSE**

K KOPPERS

# American Hammered Piston Rings

## Introducing

(CONTINUED FROM PAGE 188)

... FRED P. BIGGS appointed first vice president of Brake Shoe & Castings Division of the American Brake Shoe Co., New York, N. Y.

... D. B. WALTER as assistant manager of Fruehauf Trailer Co.'s Detroit branch. TOM CHIPPENDALE, formerly assistant service manager is now branch service manager.

... MAX P. KAISER and ERNEST TROUTMAN as district managers for Maremont Automotive Products, Inc., Chicago.

... GEORGE ANDERSON as district manager of the Wisconsin, Upper Michigan, and Eastern Iowa territory for The Toledo Steel Products Co., Toledo, Ohio.

... FRED PASHER as manager of the Dallas branch, Wagner Electric Corp. ELMER GENT, formerly of Pittsburgh succeeds him as manager of the Cleveland branch.

... PHILLIP G. NEWELL and CARL P. EKMAN as Grey-Rock district representatives for United States Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa.

... ROBERT C. HAVEN has left Continental Baking Co., New York City, to go with the Langendorf Associated Bakeries, Inc. of San Francisco, as director of safety and sanitation.

## Magnetic Fluid Clutch

A new magnetic fluid clutch, controlled by small amounts of electric power has been invented by Jacob Rabinow of the National Bureau of Standards.

In the simplest form, the magnetic fluid clutch is made up of three elements—a driving shaft with a plate at its end, a driven shaft and plate, and literally millions of fine iron particles, suspended in oil, packed between the inner surfaces of the two plates. Other than these particles in oil, there are no connections between the driving and driven elements of the system.

When the space between two parallel magnetic plates is filled with finely divided magnetic particles such as iron dust, and a magnetic field is established between the two plates, the magnetic particles form chains which bind the two plates together as tightly as if they were held together with strong spring clamps.

Operation of the clutch is characterized by extreme smoothness and absence of "chatter." In the ordinary dry-friction clutch there is usually a large difference between the magnitude of static and kinetic frictional forces. This effect gives rise to a natural tendency to "chatter" somewhat like the vibration of a violin string when a bow is drawn across it. In the Magnetic Fluid Clutch, the locking force is practically constant, and the bond between the two plates is a function of the gradual increase of magnetic field, electrically controlled. Because the relation between the amount of magnetization and the bond between the plates is linear, and independent of speed, there is no point at which the clutch suddenly tightens up to produce a jerk. Another factor is that when the clutch is fully engaged, and the load applied is not greater than that for which it is designed, slippage is completely eliminated, affording a mechanism said to be 100 percent efficient.

A major advantage of the Magnetic Fluid Clutch—in addition to simplicity of construction, smoothness and ease of control, and 100 percent efficiency when locked—is that wear is practically non-existent. All of the working surfaces are bathed in oil and such small amounts of wear as might occur would simply add to the supply of iron particles.


SAVE TIME, LABOR and TIRES—in finding ALL LEAKS in ALL Tubes up to 50" Diameter

NOW—3 MODELS

No. 820—TUBE DUNKER ALONE with holddown for tank. Fits any tank from 40" to 52" diam.
Dealer net . . $64.50

No. 821—TUBE DUNKER with 52" tank and holddown, net . . . $99.50

No. 822—TUBE DUNKER, TANK and STAND COMPLETE (as shown) net . . . . . $117.50

BISHMAN TUBE DUNKER
NO. 820—AIR-POWERED—ROTATING

It submerges an inflated tube COMPLETELY, quickly, holds it steady under water in level position, fully visible. Tube easily rotated in the water for close inspection. Avoids missing small leaks. Handy built-in light. No need to keep hands in water. AIR-POWER Cylinder operated from your regular air supply. Move one lever to lower or raise arms.

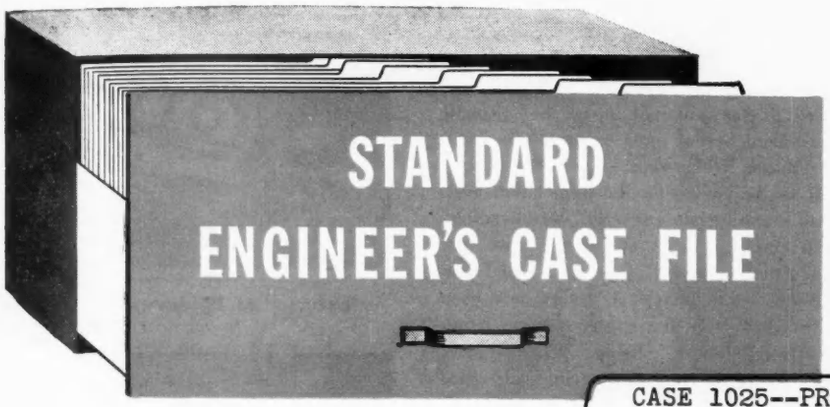
ASK YOUR JOBBER or WRITE FOR DETAILS

BISHMAN MFG. CO., OSSEO 4, MINN.

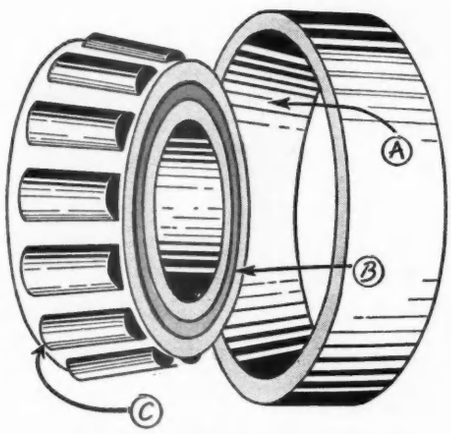
BISHMAN
Established 1926

## CCJ ODDITIES

MAGNESIUM, THE LIGHTER THAN ALUMINUM METAL THAT IS USED IN TRUCK AND TRAILER BODIES IS DERIVED FROM SEA WATER.



## CASE 1025--PROVIDING CONSTANT LUBRICATION IN WHEEL BEARINGS.




AUTOMOTIVE ROLLER WHEEL BEARING

Wheel bearings in trucks hauling heavy loads in desert heat, winter cold and rain, were in perfect condition long after usual servicing periods when the bearings were lubricated with RPM Wheel Bearing Grease. Recommended for all sizes and types of wheel bearings. Apply to bearing assemblies by hand or with mechanical lubricators.

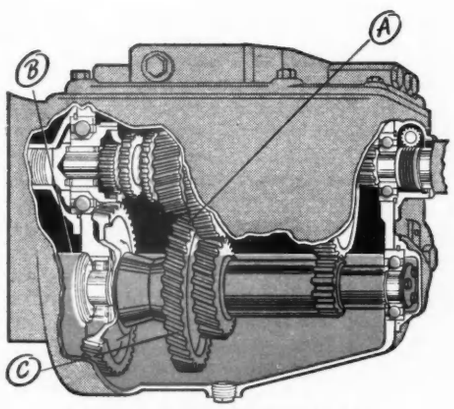
A. Maintains tough, resilient film on bearing surfaces - protects during constant pounding of road shocks and under overload pressures.

B. Feeds slowly to bearing parts ... resists extreme temperatures - will not melt and run from hubs onto brakes.

C. Stays in smallest bearing clearances.

RPM Wheel Bearing Grease provides good lubrication in the presence of water.

## CASE 1029--REDUCING WEAR IN CONVENTIONAL AND WORM GEARS.




TYPICAL AUTOMOTIVE TRANSMISSION

Compounded RPM Gear Lubricant satisfactorily met all operating conditions in these gears in cars, trucks and similar machines. Comes in four grades: SAE 80, 90, 140 and 250. (For hypoids, use RPM Multi-Service Gear Lubricant.)

A. Compounds help resist high temperatures and pressures on gears. Minimize deposits and thickening. Make it non-corrosive to metals in gears and cases.

B. No foaming and leaking trouble - contains most effective foam inhibitor known.

C. High affinity for metal maintains lubricating film at all times. Constant oil wedge at gear contact points prevents scoring and extra wear.

RPM Gear Lubricant (Compounded) resists viscosity changes ... allows easy shifting in low temperatures and fast flow of lubricant onto gears.

For additional information and the name of your nearest Distributor, write

**STANDARD OIL COMPANY OF CALIFORNIA**

225 Bush Street, San Francisco 20, California

**The California Oil Company**
30 Rockefeller Plaza, New York 20, N.Y.

**The California Company**
17th and Stout Streets, Denver 1, Colo.

**Standard Oil Company of Texas**
El Paso, Texas

RPM CALOL

Trademarks Reg. U. S. Pat. Office

# Convertible Haulaway Trailer

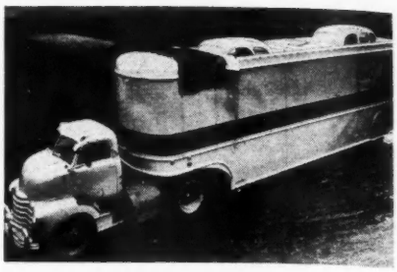
A new universal trailer that may revolutionize the haulaway and motor trucking industries has been designed by William O. Bridge, member of the Board of Bridgeways, Inc., Detroit motor freight carrier.

A drop-frame assembly semi-trailer, the carrier can be converted from its general freight capacity to a haulaway capable of transporting four maximum-sized passenger automobiles.

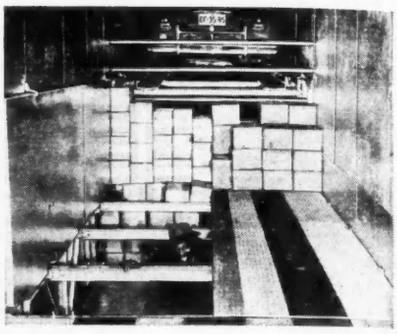
With this vehicle, carriers may haul cars and at the same time be assured at all times of a payload of general freight.

Delivery costs, which add so much to the price of the automobile to the ultimate consumer, thereby must inevitably be greatly reduced Bridge said, since the car buyer will not be paying for the tremendous overhead borne by haulaways in "dead-heading" with empty vehicles on return trips. The product is the result of Bridge's belief that previous attempts at such design have been undertaken from the wrong starting point.

"Always before," Bridge said, "they've tried to convert a haulaway into a general freight carrier. What we've done is to create a freight carrier that can be changed to a haulaway."



**Exterior of Bridgeways trailer**



**Freight on lower level, cars on upper**

In addition to its capacity for complete conversion, the new vehicle can carry cars and general freight simultaneously, in varied combinations. For instance, the load may at the same time consist of general freight while one, two or three cars are being carried.

Since movable parts for all structural alterations are of aluminum, the truck driver may perform any change singlehandedly. The carrier, 35 ft. long, 8 ft. wide and 12½ ft. high loaded, "with a full load of cars, the top bears a bowed frame covered with the new, pliable, canvas-backed tarpaulin," is of drop-frame assemble, with three carrying levels.

Aluminum bars weighing only 15 lbs., support the intermediate floor when general freight is carried and chained to prevent loss, are placed horizontally into grooves on either side as supports for the tracks upon which the car wheels rest.

Similarly, the tracks themselves are attached to the sides, out of the way for freight loads, and are detached to lay over the bars when cars are taken aboard.

Since the floors are divided in the center to allow them to be lifted against the sides, and separated crosswise of the vehicle, the front section, or either level of it, may carry one or two cars while the rear section, with two decks, may be filled with freight.

With a belly compartment completely covered over, in which fragile objects could be stowed with little breakage danger, complete separation at two levels for various types of furniture, each protected from the other, and the ability to carry an automobile at the same time, the vehicle could in one journey move the complete possessions of a large family, including its motor car, across the country with ease.

The vehicle, of higher and deeper construction than most drop-frame assemblies, can carry 37 percent more general freight, aside from its conversion features.


STREAMLINED SERVICE

WITH JOYCE SHOPMASTER 2-POST LIFTS

**Are you keeping up with the amazing developments in streamlined service operations?**

**Multiple Lift installations are proving their tremendous pulling power everywhere . . . a Lift for every mechanic and for every service are reaping huge profits in attracting trade and cutting service time.**

**The completeness of the Joyce line of ultra-modern hydraulic Lifts meets every demand. You can get Joyce Drive-On and Free Wheel single-post Lifts for lubrication and tire service; Shopmaster 2-Post Lifts for greatest efficiency on repair and maintenance jobs. For any size station you can get exactly what you need . . . AND YOU CAN GET THEM RIGHT NOW!**

**It is better to invest now in adequate modern lifting equipment than risk the loss that dogs the poorly equipped station.**

**Consult us about the new Joyce developments. Send for Catalogs 192-L and 304-L.**

*IN CANADA: Midland Foundry & Machine Co., Ltd., Midland, Ont.*

- SINGLE-POST AUTO LIFTS
- SHOPMASTER 2-POST LIFT
- BUS & TRUCK 2-POST LIFTS
- LIFTMASTER HYDRAULIC JACKS
- "FREE WHEELER" LUBE JACKS
- HOLD-A-CAR CHASSIS STANDS

THE JOYCE-CRIDLAND CO. • DAYTON 3, OHIO

I want a job that won't need a pull-down every other trip
Gimme a rig that can go up-grade . . . without shakin' me apart
just show me how to run as many trips for less money

# so they all agreed on LO-EX pistons of Alcoa Aluminum

**PERFORMANCE?** Lo-Ex pistons—T-slot, cam-ground, low-expansion—mean *smoother running* because they're lighter, cut vibration—*better compression* through closer fit—*cooler running temperatures* because of their high heat transfer.

**SERVICE?** Lo-Ex pistons are *longer lasting* because they cut cylinder wall wear, *prevent localized hot spots* because they conduct heat 2½ times faster than cast-iron pistons—let engine oil serve as a lubricant—not as a thinned-out refrigerant.

**ECONOMY?** Lo-Ex *cuts engine wear*, helps motors *run farther, faster, with less upkeep.* For original installation or replacement—whatever trade name you buy them under—specify Lo-Ex pistons of Alcoa Aluminum—the finest aluminum piston castings. ALUMINUM COMPANY OF AMERICA, 1916 Gulf Building, Pittsburgh 19, Pennsylvania.

**LO-EX** *Pistons* of Alcoa Aluminum

Registered Trade Mark

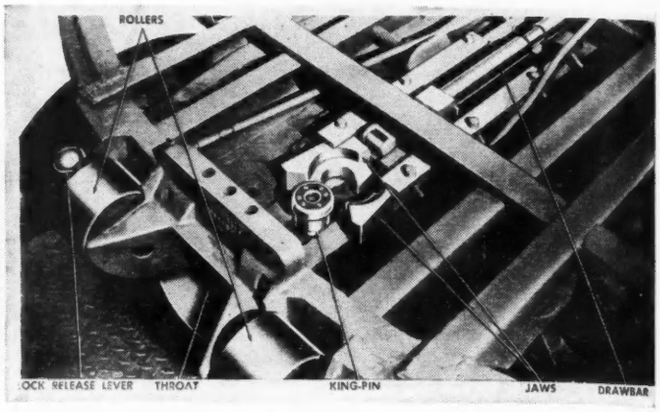
ALCOA ALUMINUM

# Fruehauf Features Automatic Coupler and Support

FRUEHAUF automatics combine an automatic coupling and uncoupling mechanism with supports which are automatically lowered when the trailer is uncoupled and automatically raised when coupled.

The unit is said to provide greater safety, time and labor saving, better load distribution and to require less loading space. With the automatic supports safety is assured since the tractor cannot be driven away without the supports down.

Fruehauf Automatic Supports feature simplicity of design with a minimum number of wearing parts. All parts are strong—designed to withstand a gross static ground weight of 30,000 lb. plus the impact due to dropping the loaded trailer upon the supports.

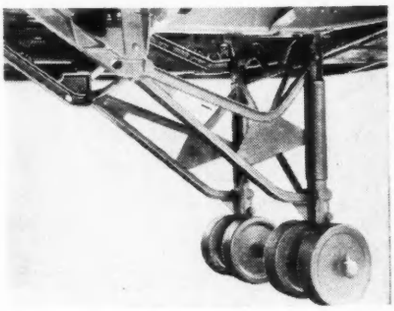



*View showing how king pin is released by jaws. Release lever is at left. Rollers are bearing - mounted to provide smooth coupling and uncoupling.*

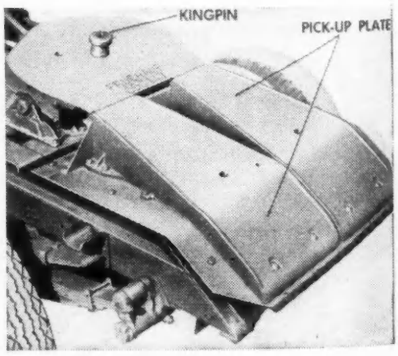
Support legs are sturdy steel castings with forked upper ends to distribute the load thoroughout the load-carrying frame of the trailer. These upper ends travel from raised to lowered positions in guide channels which are mounted on the load-carrying frame. In addition, they are horizontally braced by three stout rods and a tubular steel spacer at the top and the support wheel axle and tubular steel spacer at the lower ends of the legs.

The design makes it possible for these Automatic Supports to provide an unusual amount of forward support-travel—up to 30 in.—insuring correct weight distribution. The supports are now provided with four

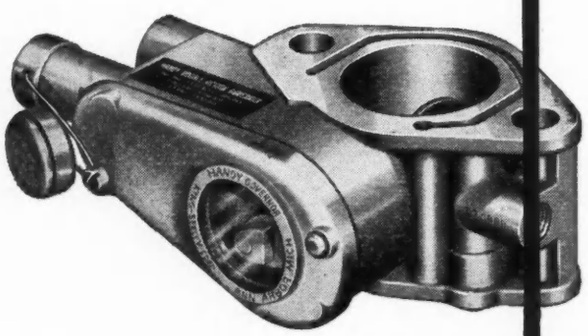
(TURN TO PAGE 196, PLEASE)



*Fruehauf supports are automatically lowered when the trailer is uncoupled and raised when the trailer is coupled.*




*The lower coupler carries a hollow king pin mounted on rubber cushion. The pick-up plate is of flanged steel built in two joined sections.*

# This GOVERNOR

**HELPS KEEP the Emotional Driver OUT OF TROUBLE**

Anger, fatigue, grief, or joy—any one of these can temporarily transform a reasonably good truck driver into a serious traffic menace. This very thing has happened too often to ignore the danger of these human reactions.

The Handy Vari-Speed Governor, however, is not human, is never emotionally involved, but always comes to the assistance of the human driver who is. When your truck fleet is equipped with the Handy Governor, you have good reason to expect fewer accidents, and you will also save on tires, engine repairs, lubrication and brake maintenance.

The Handy Governor costs but a small fraction of what it will save you in its first year of operation.

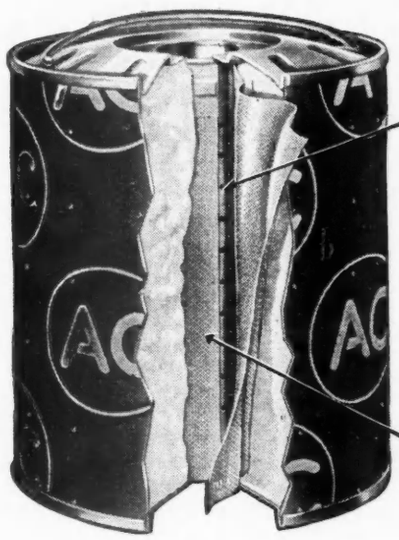
KING-SEELEY CORPORATION
ANN ARBOR MICHIGAN

PLANTS IN ANN ARBOR • GRAND RAPIDS • YPSILANTI

NOW AVAILABLE!

# New "5-STAR QUALITY" AC OIL FILTER ELEMENTS

*with* Glass Cloth Collector Tube Trap




Acidproof glass cloth covered collector tube.

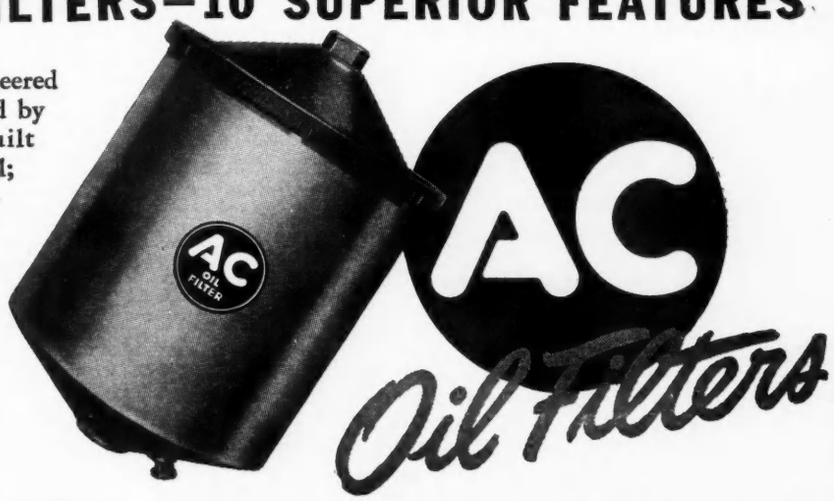
***AC has the only Oil Filter Elements with glass cloth Collector Tube Trap. This Trap is acidproof and can't rot to allow pollution of the oil. It provides a second stage of filtration, after the oil has passed through the ram-packed virgin cotton filtering material. Buy AC "5-Star Quality" Elements for better filtration.***

**Glass cloth trap will not deteriorate when attacked by engine oil acids,—an exclusive AC advantage.**

## COMPLETE OIL FILTERS—10 SUPERIOR FEATURES

AC "5-Star Quality" Oil Filters are engineered for every commercial vehicle and proved by 2 years of actual service. Quality-built throughout, with extra heavy gauge steel; machined gasket seat; high restrictor outlet to prevent "drain back" to the crankcase; glass cloth Collector Tube Trap; ram-packed virgin cotton Element, with positive end seals—and many other advantages.

**ASK YOUR AC SUPPLIER FOR THE FULL "5-STAR QUALITY" STORY**




**AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION**

## Fruehauf Coupler

(CONTINUED FROM PAGE 194)

drum-type steel wheels. They are mounted to permit a simple but wide range of adjustment for height. The support wheels are strong and light and present a broad surface to prevent bogging down—they can't be frozen in icy ground.

The upper coupler is built into the load-carrying frame of the trailer. It has an open throat, extending backward under the floor of the trailer, to receive the king-pin. The "V"-guide of the wide mouth makes coupling easy, even from wide angles. There are two roller bearing mounted steel rollers upon which the nose of the trailer rides on the pick-up plate in coupling and uncoupling operations.

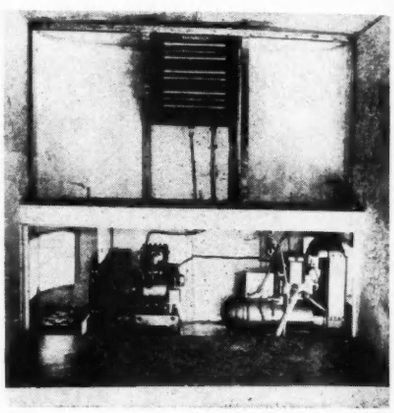
The operating mechanism of the upper coupler consists principally of a pair of spring-loaded jaws which grasp the king-pin and which slide along a channel in the throat, a lock for locking the jaws in towing position, the leg assemblies and a drawbar or rod which connects the jaws with the leg assemblies.

The lower coupler, mounted on the tractor, carries the king-pin which protrudes upward from the mounting plate. The king-pin is hollow with a tremendous factor of extra strength, making it capable of handling much greater loads than it will ever be expected to pull. The mounting plate is rubber-cushioned to eliminate metal-to-metal contact between tractor and trailer.

The "pick-up" plate is of flanged steel construction, built in two joined sections for lighter weight with greater strength. This plate has extra length and a generous drop for smooth coupling under all conditions. All moving parts are machined to 1/1000 in. for long, trouble-free life.

## Self-Contained Refrigeration Unit

A new, compact self-contained refrigerating system for trucks, which increases cargo payloads, reduces maintenance and affords constant cooling on the road plus a "plug-in" standby service during stop-overs, has been developed by K. E. May, a Frigidaire commercial refrigeration dealer at Moberly, Mo.

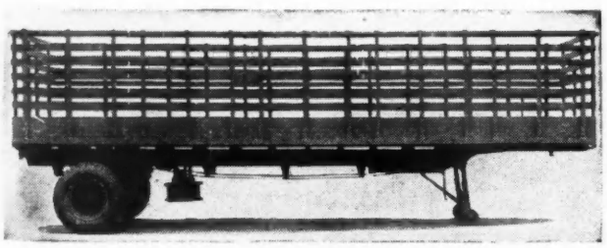


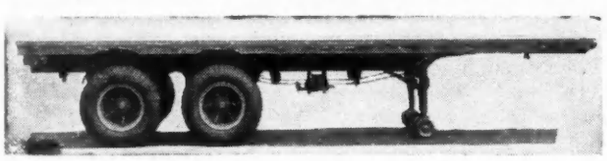
**Frigidaire cooling system**

A 7½ hp. ONAN water-cooled gasoline engine drives a 115-volt AC generating unit and powers a compact reciprocating-type Frigidaire compressor, which, in turn, operates a forced-air coil to cool the cargo compartment. The entire system weighs about 1000 lbs., costs about $1200 and is enclosed in an insulated case in the front section of the truck trailer. The forced-air cooling unit is suspended from the ceiling above. This refrigeration system has a cooling capacity equivalent to approximately one ton of ice per hour and has demonstrated an ability to hold temperatures between 35 and 38 degrees F. in a 26 ft. trailer lined with 3 in. of fiber glass insulation.

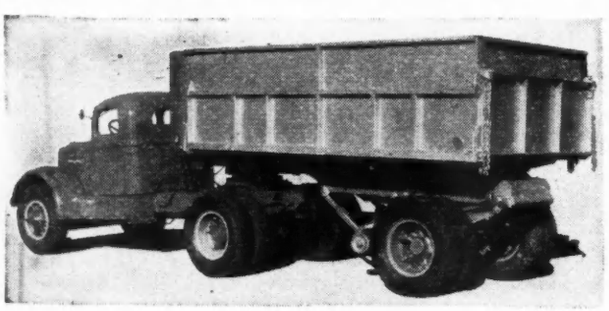

TEC
TRUCK ENGINEERING CORP.
TRAILERS

Vans
Stakes
Flats





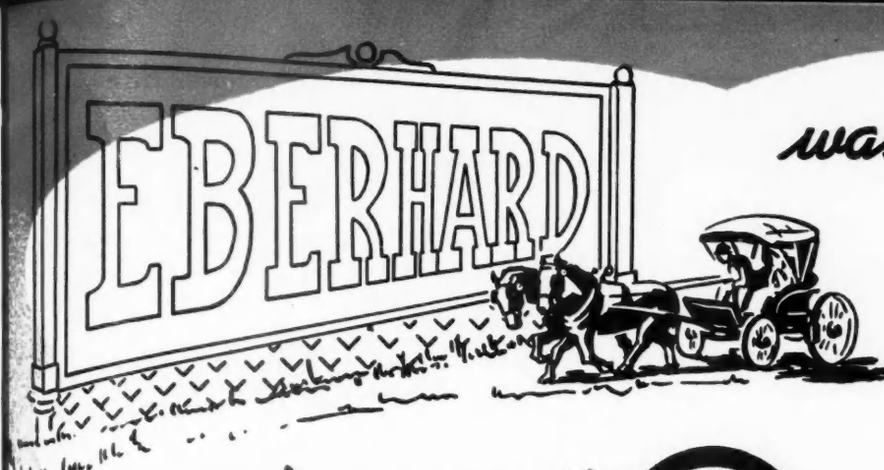
DUMP UNITS
for hauling coal and building materials



TEC trailers are designed to haul maximum payload with minimum dead weight and give long life with low maintenance cost. Single and double axle types available in all sizes and models. Prompt delivery on standard models.

*Some distributors' territory still open*

TRUCK ENGINEERING CORPORATION
Cleveland 2, Ohio




*was a Big Name in* HORSE and BUGGY DAYS

*and TODAY* EberHARDWARE

IS THE PREDOMINATING CHOICE OF TRUCK DESIGNERS AND BODY BUILDERS

EVEN in 1881 the "Better Buggy Builders" were insistent upon top quality brake block shoes, buggy steps, whip sockets, etc.

The name EBERHARD was a by-word in these progressive early day shops and the foundries at EBERHARD were busy supplying their needs.

TODAY as in the past, we are in close contact with the requirements of users as well as builders.

Eberhard engineers have developed many new items and modified established products in our complete "Purpose Tested" line to meet ever changing needs.

Your requirements have been anticipated in a wide variety of "Long Run" truck body fittings in assorted types and sizes.

The Eberhard Catalog should be in your file. Write for your copy now.

EBERHARD *Long Run* TRUCK BODY FITTINGS

EBERHARD MANUFACTURING CO.

CLEVELAND, OHIO

# Service Men Give Their Seal of Approval to PURITAN'S 3 GASKA-SEALS

Puritan's three types of GASKA-SEAL have earned the Seal of Approval by service men all over the country. With the recent addition of GASKA-SEAL No. 3, the gasket liquid of a hundred uses, the Puritan line of GASKA-SEALS is complete and enables the service man to tackle any gasketing job he encounters.

But be sure to keep a supply of all three Puritan GASKA-SEALS on hand. Each has its specific uses and each is superior for those uses.

## GASKA-SEAL NO. 1
**Hardening Type**

Spreads easily. Sticks quickly. Sets hard. Especially recommended for water connections, push rod covers, oil pan, valve plates, transmission, differential housings. Resistant to anti-freeze and high temperatures.

## GASKA-SEAL NO. 2
**Non-Hardening Type**

Spreads easily. Seals tightly but stays soft and pliable—easy to remove. Recommended for head gaskets, crank case assemblies, thermostat connections, oil and gas connections, etc. Resistant to anti-freeze and high temperatures.

## GASKA-SEAL NO. 3
**Liquid Type**

Goes on with a brush. Stays permanently elastic at temperatures from 75°F below zero to 500°F above. Unaffected by gasoline, oil, anti-freeze or other automotive liquids. Use on all types of gaskets from metal-faced to natural rubbers. Use alone where close tolerances are required. Adhesive to all surfaces. Forms permanent seal but makes disassembly easy. Convenient-to-use can with long handle brush.

125 YEARS OF CHEMISTRY FOR TRANSPORTATION

NAPA Assurance of Quality

PURITAN COMPANY, INC.

ROCHESTER 6, NEW YORK

HYDRAULIC BRAKE FLUID AND FLUSHING FLUID • GASKA-SEAL NO 1, 2, AND 3
SHOCK AND KNEE-ACTION OIL


### Delivery Truck Body

**"Carcovan," a new light delivery truck body, will soon be rolling off production lines at Pacific Car and Foundry Co., Renton, Wash. The "Carcovan" is built for three-quarter, ton, and ton-and-a-half chassis. Body construction features steel channel frame, panelled with aluminum alloy for sturdiness at light weight. Five ft. 10 in. of head room and a 70 in. width give the "Carcovan" generous payload space.**

### FTC RESTRICTS USE OF "FREE"

The Federal Trade Commission has formulated and adopted an administrative interpretation with reference to the use of the word "free" and words of similar import in advertising to designate or describe merchandise sold or distributed in interstate commerce. This interpretation, which will be published in the Federal Register, follows:

"The use of the word 'free,' or words of similar import, in advertising to designate or describe merchandise sold or distributed in interstate commerce, that is not in truth and in fact a gift or gratuity or is not given to the recipient thereof without requiring the purchase of other merchandise or requiring the performance of some service inuring directly or indirectly to the benefit of the advertiser, seller, or distributor, is considered by the Commission to be a violation of the Federal Trade Commission Act."

### CCJ ODDITIES

A TRUCKLOAD OF WET SAND WEIGHS LESS THAN A TRUCKLOAD OF DRY SAND.

A FILM OF WATER ON EACH GRAIN OF SAND KEEPS THEM APART SO THAT FEWER GRAINS GET INTO A GIVEN SPACE.

# **Eliminate** costly break-downs by modernizing your equipment with ***SYLVAN*** aluminum timing gear sets.

**Now standard equipment on Chevrolet, Ford and G. M. C. Trucks.**

**Available for Chevrolet, Ford, Hudson, Mercury and Studebaker cars, Yellow Coaches and Willys Jeeps.**

*One user says:*

**"We have been using Sylvan Aluminum Timing Gears as a replacement for composition gears for approximately one year. Some of these gears have been installed for 60,000 to 80,000 miles and we have yet to have a failure.**

**"So that you may have a better understanding of our operation, our fleet consists of GMC's and Chevrolets numbering close to 200 units. The loads vary from 13,000 lbs. to 19,000 lbs. pay load. The tractors are operated on level and mountainous terrain, on trips varying from 200 miles to 1,400 miles round trip.**

**"It has been our experience in our fleet that 25,000 miles to 30,000 miles is the most we can expect from composition gears. Therefore, we are using Sylvan Aluminum Timing Gears in sets 100% in all of our rebuilt engines and for replacement of composition gears when they fail.**

**Order from your jobber. If not in jobber's stock, write us and give jobber's name. Write or wire for literature and complete information.**

**DEXTER MACHINE PRODUCTS, INC.**
CHELSEA, MICHIGAN

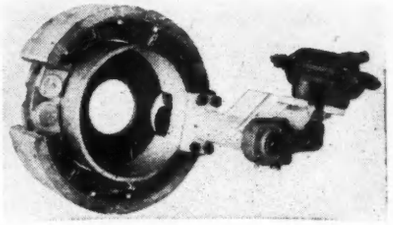
# New Austin Heavy-Duty Conversion Brake

THE Austin HD Brake is a new development in foundation conversion brakes, filling the need for heavier brakes on trucks carrying over-capacity loads. Designed for easy and convenient installation on trucks, buses, truck-tractors and trailers that have been redesigned for above-capacity loads.

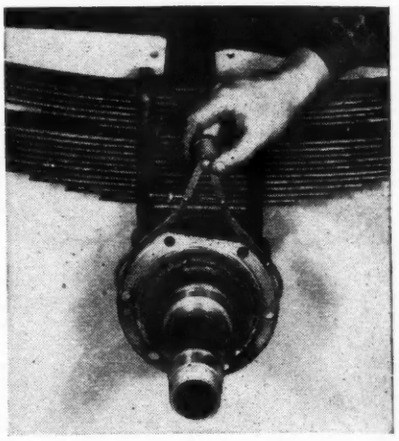
The Austin HD brake is a two-shoe type, cam-actuated power brake available in two sizes: 16½ in. x 5 in., with 400 sq. in. of braking surface; and the 16½ in. x 6 in., with 480 sq. in. of braking surface. The assembly is designed for easy installation and is self-contained, factory aligned.

Other features include interchangeability of shoes, convenience and ease of adjustment and lining replacement. A convenient patented method of installation uses the original axle flange and eliminates any alteration or addition to the axle housing. A heavy-duty constant-rise cam action can be actuated by the existing type of equipment installed on the truck—air, vacuum, hydraulic or any combination.

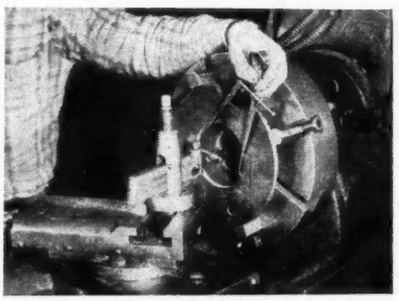
The illustrations below show assembly of the unit on a conventional axle.



*The Austin foundation conversion brake.*



*The original brake is removed and the axle flange pilot flange hub bore is measured with calipers to insure proper centering of the shoes.*



*The adjustable flange hub bore is machined to the dimension taken from the pilot flange. This should result in a hand pushed fit over the pilot flange (max. tolerance, .005 in.)*

*The brake assembly is placed in the assembled adapter. The inner bearing is placed in the bearing cup of the hub and the adjustable flange is threaded through the spider. Then the flange plate is welded to the spider and the brake assembled to the axle flange. Next step is to turn the drum to proper fit and assemble brake.*


ANYWAY YOU LOOK AT IT....

TRADE MARK YANKEE REG. U.S. PAT. OFF.

*is Outstanding!*

**SAFETY**

High fidelity vision that eliminates tricky illusions. No distortion. Easily adjusted to suit specific "seeing needs" of all drivers.

**QUALITY**

Over 32 years experience...since 1915. Technical research, up-to-the-minute production methods and painstaking attention to detail. Yankee Mirrors are the finest in the world.

**ECONOMY**

Built-in-durability, metal parts bonderized, "know-how" in processing mirrors — all add up to keep your replacement maintenance down!

NO. 245 TELESCOPIC ADJUSTABLE MIRROR WITH 5" HEAD

- Extends from 19¼" to 27¾".
- Universal Mounting.
- Adjustable to any position.
- Heavy Steel Tubing.

NO. 238 6" MIRROR HEAD

*Write for Catalog*

See Your Jobber

245H—REPLACEMENT MIRROR HEAD Made to fit the No. 245 Telescopic Adjustable Mirror.

CONVERSION KITS

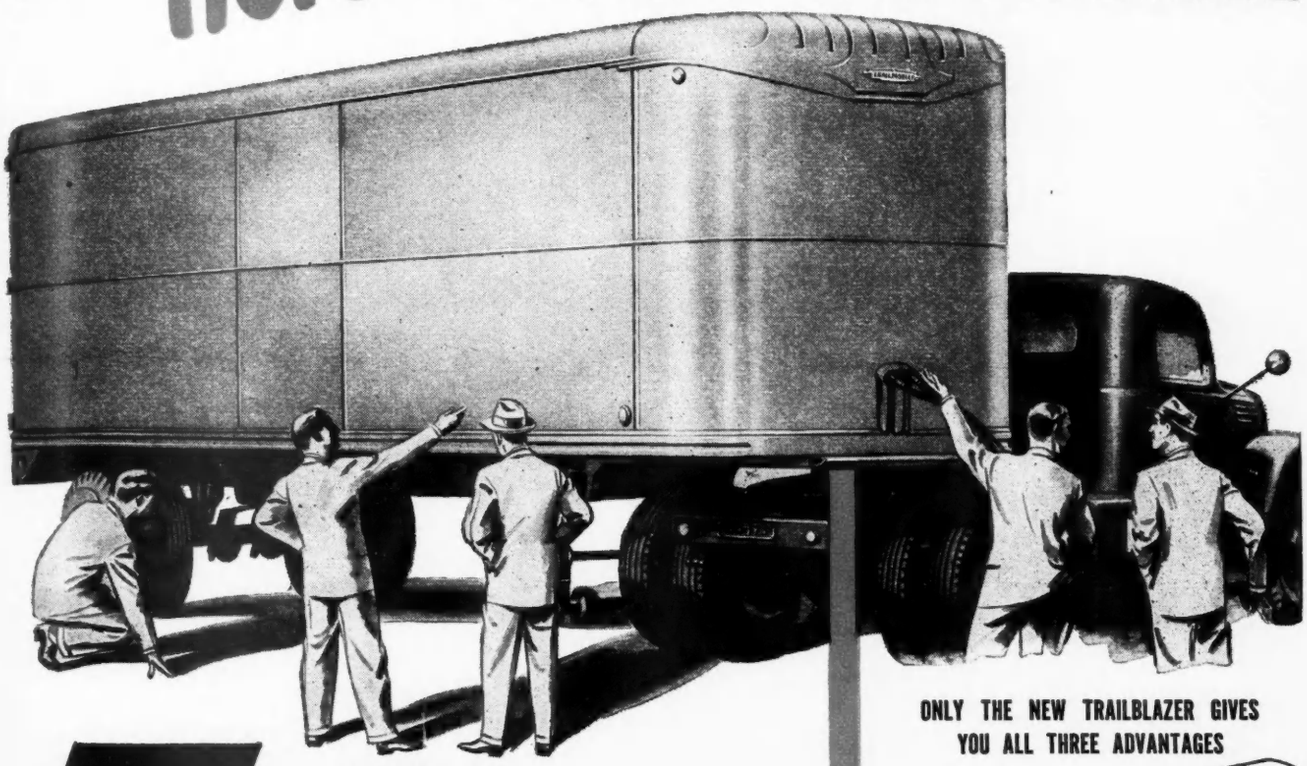
STOP AND TAIL LAMPS

DIRECTIONAL SIGNALS

YOU'RE SAFE WHEN YOU SEE WITH YANKEE

YANKEE METAL PRODUCTS CORP., NORWALK, CONN., U. S. A.

# It's here! AN ENTIRELY NEW TRAILER



## THE Trailblazer
### IT'S RUSTPROOFED!

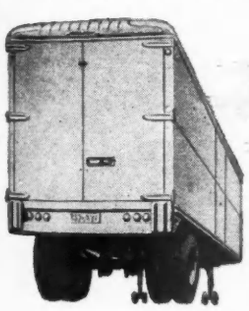
You're looking at the newest thing on wheels. A brilliant Trailmobile achievement that's *all new* . . . kingpin to bumpers!

Once you see it, you'll learn why the light-weight Trailblazer promises you bigger payloads with lower hauling and upkeep costs. Pound for pound, it's the strongest trailer ever built.

And you can stop worrying about rust! For the first time in history you get a trailer with *all exposed ferrous metal parts* rustproofed by a special, exclusive process. Yet this is only one of many reasons why the Trailblazer gives you miles and miles of added trailer life.

Another reason for longer life is *aluminum*—in sides, roof, doors. And you'll find high-strength aluminum alloys in wheels, landing gear, and many other parts. The Trailmobile Company, Cincinnati 9, Ohio and Berkeley, California.

The streamlined rear end reflects smart styling. Corners fully rounded, and lights are recessed.



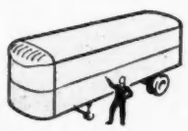
**ONLY THE NEW TRAILBLAZER GIVES YOU ALL THREE ADVANTAGES**

**1.**

**New, Exclusive Rustproofing**

Exclusive zinc-base "weather-plating" protects entire understructure from rust. Rain, road spray, dampness cannot harm steel crossmembers, load distributors, fifth wheel plate, and other vital structural parts.

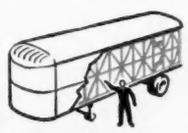
**2.**



**Aluminum for New Lightness**

Tough, light, nonrusting aluminum cuts weight in side panels, doors, mouldings, roof, roof bows and landing gear. High-strength, heat-treated aluminum alloy permits saving of 55 pounds in each wheel alone.

**3.**



**Steel for New Strength**

Strong steel channel posts and struts are arranged in "diamond" pattern for extra resistance to weaving. Advanced C-shaped design of structural members permits extra strength in posts and struts without extra weight.

***Altogether 35 great new features!***

## TRAILMOBILE TRAILERS

# New Products

(CONTINUED FROM PAGE 137)

## P5. Boring Tool Set

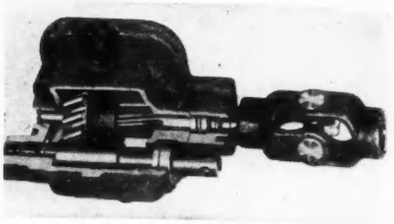
A new Davis combination tool set, produced by the Davis Boring Tool Div., Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., is designed to end repeated trips to the tool room for different boring tools and setup accessories.

In a typical set there are seven different sized super micrometer boring tools that have an infinite cutting range in diameters from 1¼ in. to 7 in. For boring both larger and smaller holes, there is a micrometer graduated boring and facing head with a working range from 0 to 13 in. This head is equipped with different type cutters which can be mounted in the tool slide either parallel to or at right angles to the tool shank. Thus holes common to a wide variety of work are easily bored or faced to precision limits merely by selecting the required size boring tool from the set.

***Use Free Postcard for More Details.***

## P6. Power Take-Off

To complete the line of power take-offs covering Chevrolet trucks, the Chelsea Products Co., Chelsea, Mich., announces the design of a new take-off with helical



gears to mesh with the synchro-mesh 4-speed transmission of 1948 Chevrolet models.

There are two styles, the 2-C or light duty, and the 2-CN, or medium duty with needle bearings. These power take-offs shift in and out of gear by lever control. The conventional two-position spring ball latch is used. The helical gear slides in and out of gear on the helical splines of the shaft, which curve in the opposite direction to the teeth on the gear itself. Thus, position is maintained by the thrust of the splines on the shaft offsetting the thrust of the gear teeth.

There are no moving parts in this Chelsea Power Take-off when not in gear.

***Use Free Postcard for More Details.***

## P7. Refrigeration Unit

The Hydraulic Engineering Co., Waukesha, Wis., has developed refrigeration and cooling systems known as Hydro-Aire.

Hydro-Aire refrigeration is a refrigeration unit designed and engineered for transport trucks, delivery trucks and trailers requiring low temperatures. The refrigerator can be equipped with a stand-by electric motor to be used in emergencies and at dock parking. When the electric motor is used, no changes of operating mechanism are required other than to plug in the cord.

The Cooler is ice-loaded. Air is circulated over ice through truck body approximately twice a minute. Temperatures can be held at 38 to 40 deg. in the average truck body.

These units are powered by hydraulic energy generated by a pump driven by the truck engine, which in turn operates the hydraulic motor that drives the refrigerating mechanism. These units are automatically controlled—regardless of the speed of the truck the mechanism is always maintained at a predetermined speed.

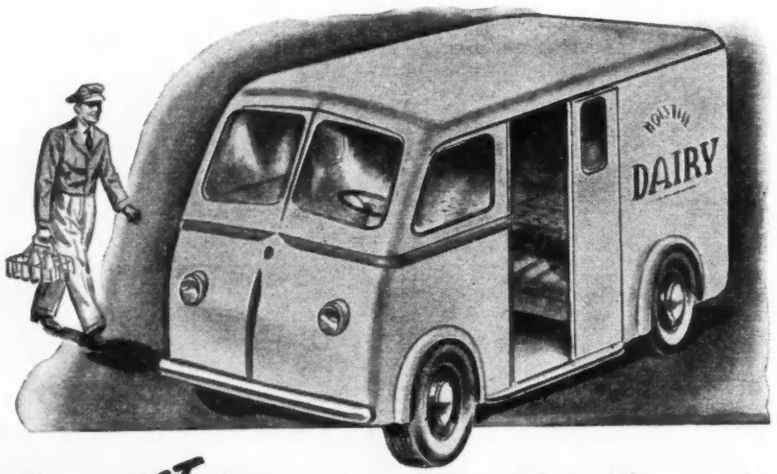
These refrigeration units are manufactured by the Hydro-Aire Corp. of 225-247 Madison St., Waukesha, Wis.

***Use Free Postcard for More Details.***

## P8. Service Jack

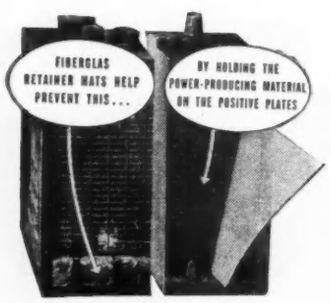
The J. O. Stephenson Foundry & Machine Co., Detroit, Mich., has developed the Step-

(TURN TO PAGE 204, PLEASE)


*The BEST Batteries Save You Money!*

By helping to prevent lost time, helping to keep your costly equipment on the road, the *best* batteries save you money. And, because they usually last longer, they can give you extra value for your battery dollar, too. Heavier cases, bigger plates, *double insulation* . . . all pay handsome dividends in a heavy duty battery . . . help to withstand the high mileage, heavy drains and constant overcharging of tough service.




**Here's How FIBERGLAS* Makes Good Batteries Better!**

Practically all battery manufacturers *double insulate* their "best" batteries with Fiberglas Retainer Mats. These thin, porous sheets, made of fine, flexible, interlaced fibers of glass, hold the power-producing material on the plates longer, add substantially to the life of batteries.

**FOR LONGER, BETTER SERVICE...GET BATTERIES DOUBLE-INSULATED WITH**

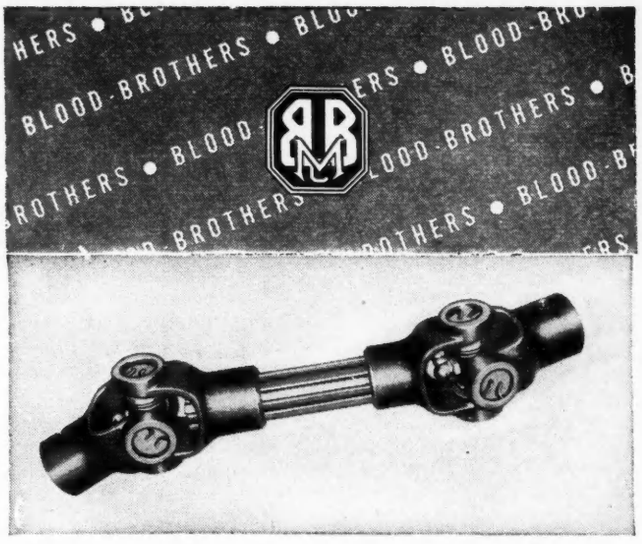
OWENS-CORNING FIBERGLAS

*Fiberglas is the trade mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation, Toledo 1, Ohio.

(Continued from Page 118)

| Line Number | MAKE AND MODEL | Chassis List Price | WHEEL-BASE Minimum Standard | WHEEL-BASE Maximum Standard | Gross Vehicle Weight for Normal Service | Chassis Weight (See definition) | TIRE SIZES Standard Front and Rear | TIRE SIZES D-dual rear S-single rear Maximum Authorized Tire Size (Duals unless noted) | ENGINE DETAILS Make and Model | No. of Cylinders Bore and Stroke | Displacement | Comp. Ratio | Torque lb. ft. | Max. Brake H.P. at R.P.M. Given | Main Bearings Number, Diameter and Length | Governor Standard | TRANSMISSION Make and Model | Forward Sp'ds | REAR AXLE Make and Model | Gear and Type | Drive & Torque | Gear Ratio Range in High | FRONT AXLE Make and Model | BRAKES SERVICE Make Location Type Operation | BRAKES SERVICE Lining Area | BRAKES SERVICE Drum Area | BRAKES SERVICE Drum Material | BRAKES Hand Location Type | C-A Dimensions (Min. Std. W. B.) | FRAME Side Rail Dimensions | FRAME Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Truckstell, Cont'd. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (C) | F4X26 4R | | 144 | 210 | 26000 | ♦6300 | 7.50/20 | 8.25/20 | Ford | 8–3¾ x 3¾ | 239 | 6.4 | 180 | 100–3800 | 3–2¼ x 4.71 | N | Ford | 8 | Ford | SF | 6.07–10.5 | Ford | F61HV | 502 | 836 Co | TX | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | F4X27-0 | | 117 | 210 | 26000 | ♦6300 | 7.50/20 | 8.25/20 | Ford | 8–3¾ x 3¾ | 239 | 6.4 | 180 | 100–3800 | 3–2¼ x 4.71 | N | Ford | 8 | Ford | SF | 6.07–10.5 | Ford | F61HV | 502 | 836 Co | TX | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | F4X29 4R | | 144 | 210 | 29000 | ♦7000 | 7.50/20 | 8.25/20 | Ford | 8–3¾ x 3¾ | 239 | 6.4 | 180 | 100–3800 | 3–2¼ x 4.71 | N | Ford | 8 | Ford | SF | 7.47–12.9 | Ford | F61HV | 502 | 836 Co | TX | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | F4X30-0 | | 117 | 180 | 30000 | ♦7200 | 7.50/20 | 8.25/20 | Ford | 8–3¾ x 3¾ | 239 | 6.4 | 180 | 100–3800 | 3–2¼ x 4.71 | N | Ford | 8 | Ford | SF | 7.47–12.9 | Ford | F61HV | 502 | 836 Co | TX | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | C4X26 2F | | 157 | 234 | 26000 | ♦5800 | 7.50/20 | 8.25/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 4 | Tim | SFd | 5.64–8.22 | Chevrolet | C61HV | 546 | 780 Co | 2L | 82½ | 7 ½ x 33 x .47 | CT f |
| (C) | C2X28 2F | | 157 | 234 | 28000 | ♦6500 | 7.50/20 | 8.25/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | C. and BL | 8 | Cla R1250 | SFd | 6.67–8.83 | Chevrolet | C61HV | 650 | 1033 Co | TX | 82½ | 8 ½ x 33 x .50 | CT f |
| (C) | C2X34-0 | | 141 | 224 | 34000 | ♦8590 | 7.50/20 | 9.00/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | C. and BL | 12 | Cla R1560 | SF | 6.41–11.1 | Chevrolet | C61HV | 546 | 780 Co | 2L | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | C2X34 2F | | 157 | 234 | 34000 | ♦8420 | 7.50/20 | 9.00/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 8 | Chevrolet | SF | 6.41–11.1 | Chevrolet | C61HV | 546 | 780 Co | 2L | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | C4X26 4R | | 145 | 212 | 26000 | ♦6120 | 7.50/20 | 7.50/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 8 | Chevrolet | SFd | 7.47–12.9 | Chevrolet | C61HV | 546 | 780 Co | 2L | 63¾ | 7 ½ x 33 x .47 | CT f |
| (C) | C4X27-0 | | 117 | 184 | 27000 | ♦6215 | 7.50/20 | 7.50/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 16 | Eat 1350 | SFd | 7.47–12.9 | Chevrolet | C61HV | 512 | 836 Co | TD | 63 | 7 ½ x 33 x .47 | CT f |
| (C) | C4X29 4R | | 145 | 212 | 29000 | ♦6880 | 7.50/20 | 8.25/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 16 | Eat 1350 | SFd | 7.47–12.9 | Chevrolet | C61HV | 512 | 836 Co | TD | 63 | 7 ½ x 33 x .47 | CT f |
| (C) | C4X30-0 | | 117 | 184 | 30000 | ♦7290 | 7.50/20 | 8.25/20 | Chevrolet | 6–3½ x 4½ | 356 | 6.192 | 93–3100 | 4–2¼ x 4.5 | N | Chevrolet | 16 | Eat 1350 | SFd | 7.47–12.9 | Chevrolet | C61HV | 512 | 836 Co | TD | 63 | 7 ½ x 33 x .47 | CT f |

♦ Includes Cab.


**HERCULES HEAVY DUTY DUMPS**
**are Driven Through**
# BLOOD-BROTHERS
## *Universal Joints*

Hercules Steel Products depends on Blood-Brothers' rugged, sturdy L10S joints. These tough, little joints operate Hercules' 11 and 17-cubic yard bodies.

Blood-Brothers Universal Joints are widely used by manufacturers of Hoists and Dump Bodies, because of their ability to take heavy torsional loads at high speed and give maximum efficiency at a minimum of cost.

An experienced engineering staff is qualified to meet your demands for special equipment.

When you need flexible power, look to Blood-Brothers. Write for literature or engineering data now.

*Universal Joints*
**BLOOD-BROTHERS MACHINE CO.**
ALLEGAN, MICHIGAN
Division of Standard Steel Spring Co.

## New Products

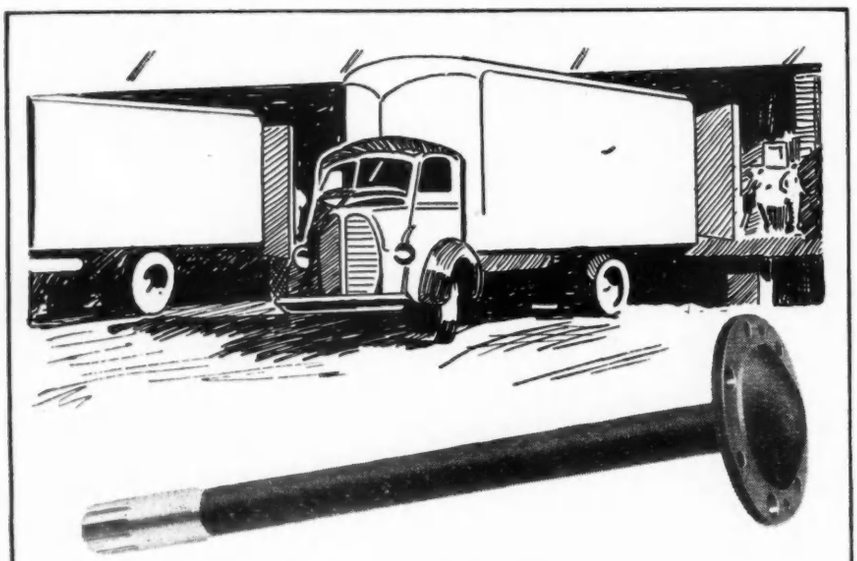
(CONTINUED FROM PAGE 202)

Draulic service jack—an hydraulically operated equipment having a capacity of 1½ tons. The jack is operated remotely by means of a movable pump which may be foot-operated for jacking a vehicle and hand operated when dropping a transmission assembly. One of the major features of the pump is in the ability of placing it conveniently for either requirement.

The jack is capable of extension to 20 in. in height and can be supplied with special adapters to extend this height to 22 or 24 in. The adjustable position rigid handle makes it possible to move the jack to any location and then move the jack and load at will.

Special transmission carrier plates have been designed for transmissions used in popular makes of cars and trucks. Such carrier plates make it convenient to handle Dynaflow or Hydra-Matic transmissions, for example. The upper end of the jack to which the carrier plate is attached is fitted with a universally-mounted pad to permit adjustment of pad and carrier plate level to the transmission. After the initial adjustment has been made it is locked in place by means of the special studs fitted to the pad.

***Use Free Postcard for More Details.***

**TOUGH U.S. AXLES . . . cost-wise**

**truckers use 'em for 3 good reasons—**

**Fewer breakdowns. Less maintenance expense.**

**Types & sizes for 'most any truck on the road.**

**Ask your Jobber.**

**US AXLES**

**Free! New Catalog. Contains listings of U. S. heavy duty replacements for Army Surplus trucks. U. S. Axle Co., Inc., Pottstown, Pa.**

### P9. Eaton Fan

The Eaton Mfg. Co., Cleveland, Ohio, has placed on the market a dynamic fan drive for use on late model Ford engines in passenger cars and trucks.

The drive and fan assembly is bolted to the engine with the regular mounting bolts, and a variable resistance thermostat is installed in the radiator return to the engine. This thermostat is capable of starting and stopping the fan as well as varying the fan speed in accordance with changes in water temperature.

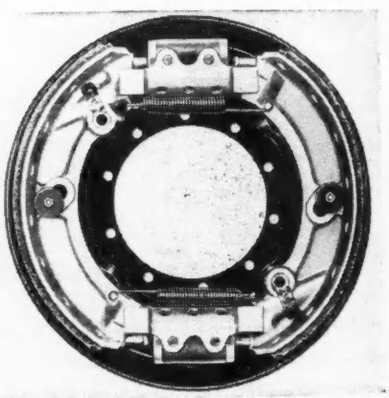
Cooling system water passes through the radiator so that it receives all the cooling possible from impact air. If the air passing through the radiator by impact alone is not sufficient to cool the water properly before it returns to the engine, the thermostat starts the fan slowly, gradually increasing the fan speed until the water leaving the radiator is at the proper temperature. The thermostat follows the water temperature closely, causing the fan to run faster or slower or stopping it entirely in accordance with variations in speeds, load, and temperatures encountered, so that the water being returned to the engine is always at the proper temperature.

By using the Eaton Dynamic fan with its controlling thermostat, the fan runs only when cooling is required and then only at the speed required to cool the engine under the particular temperature and road conditions being encountered. Thus the fan operates only a small fraction of the engine operation time and rarely at top speeds.

***Use Free Postcard for More Details.***

### P10. Hi-Tork Brake

The Automotive Division of Wagner Electric Corp., St. Louis, Mo., announces the development of a new Hi-Tork self-centering (Wagner Type FR) hydraulic brake, with two forward-acting shoes. Designed for use on medium and heavy duty vehicles, the FR brake is said to be outstanding for its powerful braking action, simplicity of construction, and ease of adjustment.



Double-end wheel cylinders at both ends of the brake shoes provide positive, immediate actuation of the brake. Full utility of hydraulic power is distributed equally and directly to both shoes, resulting in easier operation of the brakes, more even lining wear, longer lining life, and smoother, more efficient stopping. Both brake shoes are fully energized in forward and reverse direction of wheel rotation.

Adjustment of the FR brake has been

(TURN TO PAGE 206, PLEASE)

# *Fix worn top ring grooves for keeps— the only dependable, economical way, with*

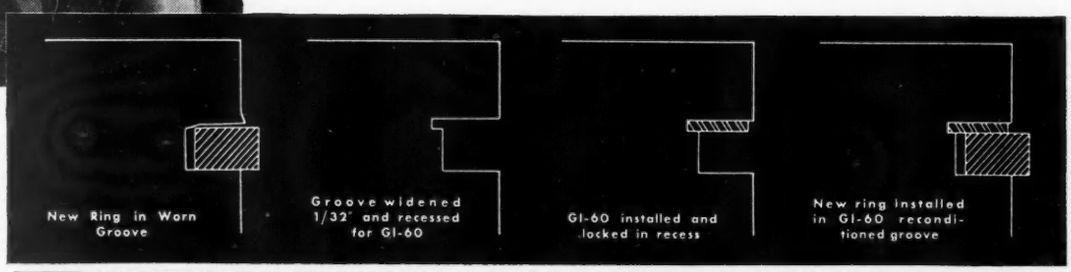
# SEALED POWER GI-60 Contracting Groove Insert

SEALED POWER GI-60 is not a spacer. It doesn't float. It puts 1/32″ of heat-resisting, wear-resisting steel armor plate at the top of the top ring groove, where the hardest wear comes.

This armor-plate protection is permanent. The top ring groove is first regrooved to an absolutely true surface 1/32″ wider than before, with a 1/32″ recess at the top. The Sealed Power GI-60 Contracting Groove Insert locks itself permanently into this recess. The "contracting" feature takes care of that. GI-60's heat-treated spring steel resists wear and pounding better than aluminum, better than cast iron. *It is the only dependable, economical answer to top ring groove wear.*

Without such treatment, new rings will stick. They will wear out fast. They will cause cylinder wear. They will waste gas. To widen the groove and use a wider ring changes the manufacturer's specifications and invites trouble. To use an ordinary floating spacer simply means using a wider ring in two parts. *GI-60 is the only proved satisfactory answer.*

Your Sealed Power distributor can install GI-60 for you. He has the special Sealed Power tools required. GI-60 means good profits for you and satisfaction for your customers. It makes old pistons new, keeps new pistons young. Ask your Sealed Power distributor or write direct.


New Ring in Worn Groove
Groove widened 1/32" and recessed for GI-60
GI-60 installed and locked in recess
New ring installed in GI-60 reconditioned groove

SEALED POWER PISTON RINGS

## SEALED POWER CORPORATION

MUSKEGON, MICHIGAN • STRATFORD, ONTARIO

(CONTINUED FROM PAGE 204)

simplified. An adjustment in two places on each brake is performed by merely inserting an Allen wrench into a slot in the backing plate and turning in the same direction as wheel rotation during forward motion. No locking of the adjustment is required after this operation. Shoe-centralizing adjustment is never required, as the brake shoes are automatically centered by moving radially along the sides of anchor blocks until they are in proper position in relation to the drum. This results in perfect centering of the shoes during each brake application. This self-centering design permits the brake shoe anchor points to be closer to the axis and thus greater braking force is obtained from a given line pressure. In the event of brake drum distortion, brake shoes adjust themselves to conform to the drum and thereby maintain effective braking action.

***Use Free Postcard for More Details.***

## P11. New Chrome Ring

Wilkening Mfg. Co., Philadelphia, Pa., has developed a new chrome piston ring of C-90 metal which is said to offer safety and dependability against breakage, to provide zero tolerance in light-tightness for a good cylinder seal, and to promise an aviation finish which seals grooves and minimizes wear.

Pedrick C-90 alloy is centrifugally cast and the white metal is then heat-treated in multiple stages in special molten-salt solutions, operating under automatic control. This process is said to produce improved characteristics in the piston ring for more satisfactory performance.

The new metal is tough and resilient with a high tensile strength. It provides greater strength at high operating temperatures and is said to eliminate top-ring breakage under very heavy loading. The ring is said to produce from two to four times longer efficient life and to reduce cylinder wear due to the new metal characteristics.

***Use Free Postcard for More Details.***

## P12. Refrigeration Unit

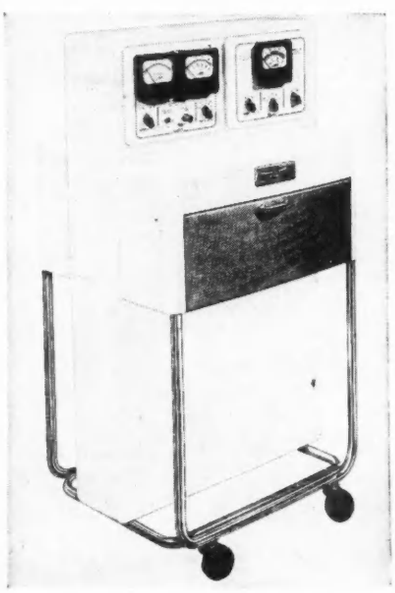
A new packaged truck refrigeration unit that may be installed by the operator himself has recently been announced by the Kold-Hold Mfg. Co., Lansing, Mich. According to the manufacturer, this unit makes it possible for the operator to refrigerate his trucks at low cost without complicated installation or operation procedures. Like a domestic refrigerator, the truck refrigeration unit is a complete self-contained refrigeration system.

The unit contains heavy-duty "Hold-Over" Truck Plates which are connected to an air-cooled condensing unit. The cooling cycle is started by plugging in to any 110-volt electric outlet. Thus, the truck may be charged at any stop or wherever electricity is available. The manufacturer states that this unit will pull down the truck temperature overnight and that the charged "Hold-Over" plate will then maintain the predetermined low temperature of the truck throughout the next day's deliveries.

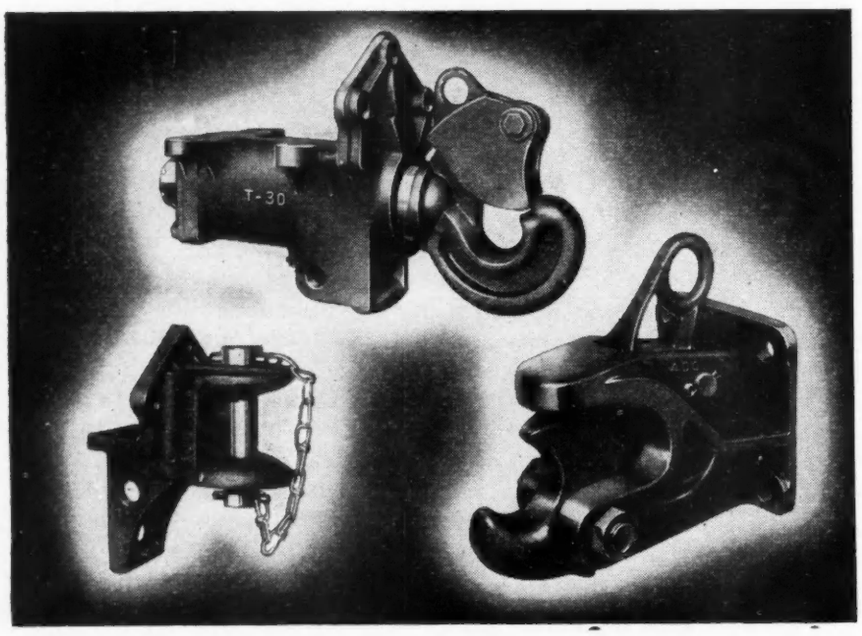
***Use Free Postcard for More Details.***

## P13. Engine Analyzer

A new series of motor analyzers designed to house 2, 3 or 4 individual pieces of test-



(TURN TO PAGE 208, PLEASE)


**NEW Double Acting Pintle Hooks**
**Automatic Industrial Couplers**
**Solid Couplers for Trucks & Trailers**

*Write for detailed specifications of the complete Holland line.*

**All types for all purposes—engineered for smooth, efficient performance, with many special features that make the Holland line preferred by experienced truck and trailer fleet operators. Whatever your needs in pintle hooks, couplers, bars, or hitches, come to Holland with your problems;— you'll find the right product for the right spot.**

**Made by the makers of Famous Holland fifth wheels and landing gears.**

ENGINEERED BY
HOLLAND HITCH COMPANY
HOLLAND, MICHIGAN, U. S. A.

# "WORLD BESTOS Brake Blocks have done a FINE JOB for us!"

## More Mileage . . . More Safety

The Warner Company, of Philadelphia, Pa., dealers in sand, gravel and lime products, operates a fleet of 202 trucks over heavily traveled roads. A great many of these units are equipped with air brakes. Warner uses World Bestos Brake Blocks because they stand up better under such severe service.

Mr. P. W. Smither, Superintendent of Motor Trucks, says, "World Bestos Brake Blocks in ¾-inch thickness have done a fine job for us on our heavy-duty equipment. We get good mileage from these blocks, and our trucks can stop fast in heavy traffic. Your materials have proven excellent for our type of work."

World Bestos Brake Blocks deliver such performance because they wear slowly in even the most severe service while providing a stable, resilient friction under all operating heats and pressures. Use a set of World Bestos Blocks and compare them to those you now use.

BRAKE LININGS WB BRAKE BLOCKS

# WORLD BESTOS

CORP.

6335

NEW CASTLE • INDIANA

## New Products

(CONTINUED FROM PAGE 206)

ing equipment has been announced by Lanagan & Hoke, Philadelphia.

The new Lanagan 2-unit motor analyzer, illustrated, Model 140F2B, is designed to house various combinations of testing units. The combination consists of Model 125-E Low Voltage Circuit Tester, and Model 114-E, Coil Tester. Another popular combination which may be used with the above unit is Model 125-F, Single Meter Low Voltage Circuit Tester and Model 111-E, Combination Vacuum Gage and On-The-Car Coil Tester.

***Use Free Postcard for More Details.***

### P14. Safety Tread

The American Abrasive Metals Co., Irvington, N. J., announces that Amcolun, the new abrasive safety tread, is now available to the transportation industry.

It combines safety, durability, weight economy, and cleanliness. The structure is homogeneous and compact—composed of abrasive material (aluminum oxide) and other inert fillers in even distribution. These materials are bonded together with a heat-resisting thermo-setting phenolic resin. The result is an extremely durable safety tread with a non-slip surface that is equally effective under wet, dry or even oily conditions.

Amcolun Safety Tread, in addition to being available with nosing for steps, is also produced in sheets, cut according to a desired pattern, and ready for installation on platforms or walk-ways.

***Use Free Postcard for More Details.***

### P15. Protective Coat

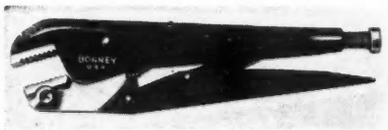
Metal, wood, leather and fabric surfaces can now be protected from corrosion and deterioration by a new transparent liquid "skin" which is being introduced by State Chemical Corp., New York 1, N. Y.

Called Permacote, the new protective coating was designed for use on surfaces which require protection from moisture, acids, alkalis, alcohol, dyes, dirt, dust, etc. It can easily be applied by brush, spray or dip and forms a tough transparent coating which remains permanently flexible and is highly resistant to abuse by either physical or chemical means. The new product is also resistant to extremes of heat or cold and will not crack or chip in spite of the expansion or contraction of the surface it protects, the company states.

***Use Free Postcard for More Details.***

### P16. Plier Wrench

A new plier wrench is now in the line of tools of Bonney Forge & Tool Works, Allentown, Pa. Made in two sizes, 7 in. and 10 in., these tools are very fast in adjustment and easy to use.



The design of this plier wrench results in the bottom jaw becoming a hinged fulcrum which permits a firm solid grip without slippage on irregular shaped objects. If so desired, the jaws can be made to grip at the ends only.

***Use Free Postcard for More Details.***

### P17. Utility Lamp

The Pompton Mfg. Co., Pompton Plains, N. J., has developed a portable light unit that is light in weight, sturdy enough to withstand hard usage on the job, adaptable to a large variety of work, adjustable to a wide range of positions.

The new unit, designated as "The Pompton Multi-Lite," remains upright if jostled, and will return to position even when tipped by accidental contact to an angle of 45°.

With an infra-red lamp inserted in the socket instead of the usual light bulb, it is stated to be particularly useful in auto-

(TURN TO PAGE 210, PLEASE)

**"We usually dismantle them before shipping."**

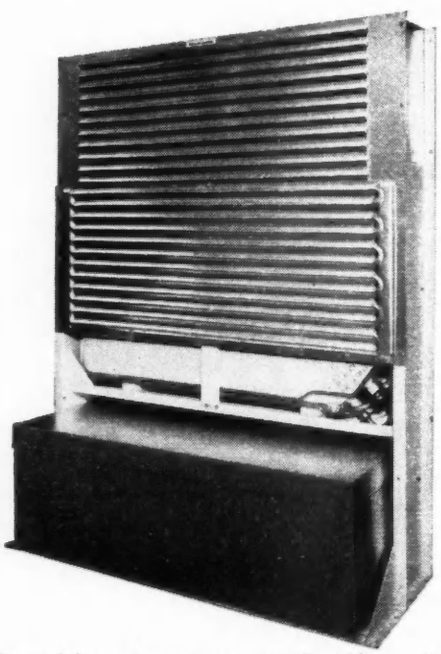

a new, complete, packaged

**TRUCK REFRIGERATION UNIT**

**that you can install yourself**

Simplicity of the new Kold-Hold Packaged Refrigeration Unit pays dividends for you in lower Truck Refrigeration costs. Push the Unit into the truck, bolt it in place and it's ready for operation.

Cooling cycle is started by plugging-in to any 110 volt electric outlet. You can build refrigeration in the truck wherever electricity is available. The "Hold-Over" Plates in the unit will maintain predetermined low temperature of the truck throughout a day's deliveries.



**WHAT IS IT?** A packaged unit to refrigerate average truck 40° to 50° temperature for a day.

**HOW DOES IT WORK?** Shipped complete. Push into truck, cut holes for air intake and discharge, bolt to floor and plug into electrical outlet.

**IS BODY WORK REQUIRED?** No, unit is adjustable to fit most any truck.

**HOW LONG TO FREEZE PLATES?** Ample plate refrigeration in 8 to 10 hours, under any weather conditions

**HOW ABOUT LONG RUNS?** Truck Contents are easily protected 2 days or longer by simply plugging-in at overnight stop.

**WHAT IS OPERATING COST?** Compressor operates for a few cents a day. Any refrigeration man can service.

**HOW DOES IT COMPARE WITH ICE?** More dependable refrigeration at less cost with no slime or bother.

**IS THIS NEW?** It is new only in that it is a packaged unit. Kold-Hold Refrigeration Plates have given satisfactory operation for hundreds of users for over 15 years.

*Write for free literature.*

**KOLD-HOLD**

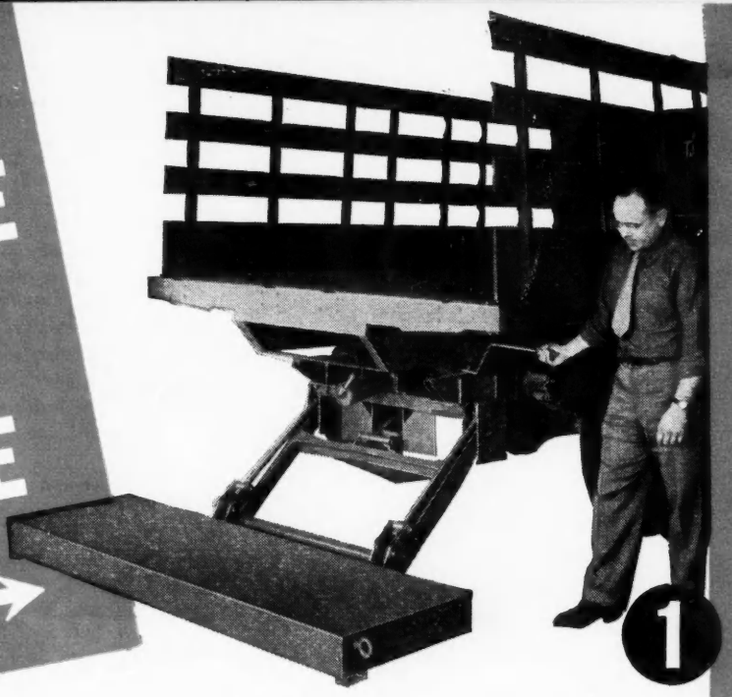
*Jobbers in Principal Cities*

PROCESSING TRANSPORTATION STORAGE

protects every step of the way

**KOLD-HOLD MANUFACTURING CO., 620 E. Hazel St., Lansing 4, Michigan**

# YOU CAN *Really* ELEVATE WITH *This* TAILGATE



No. 1—In lowered position, you see the HYDRAUL-LIFT TAILGATE ready to receive or discharge loads which can be hand-trucked to and from this point.

## It's the New Money-Saving

## CEMCO *Hydraul-lift* TAILGATE

Lifts the load from ground to truck-bed level in a matter of seconds — **with only one man!**

•

Fits any truck body or semi-trailer body.

•

Operator can raise, lower or start or stop load in any position. This is an important safety feature.

•

Saves money in many ways — one truck can replace three —requires fewer truckers and helpers — cuts down capital investment — reduces driver fatigue and personal injuries claims, etc.

•

Easily and simply installed — complete equipment weighs only 733 pounds, including all mounting accessories.

•

*Let the Truck Motor Do the Lifting!*

***Write TODAY for detailed specifications.***

No. 2—Tailgate in bed-level position. Load is received or discharged onto the truck bed.

No. 3—Shows the Tailgate in closed position—no protruding parts to cause trouble or get damaged.

**CEMCO INDUSTRIES, INC.,**
**Galion, Ohio**

**RAISES or LOWERS UP TO 1500 POUNDS**

## New Products

(CONTINUED FROM PAGE 208)

motive body paint shops, or wherever quick drying is required, because the heat source can be positioned exactly at the most effective height.

***Use Free Postcard for More Details.***

### P18. Fire Fighter

American-LaFrance-Foamite of Elmira, N. Y., announces a new carbon dioxide fire extinguishing system for protecting Class "B" and "C" risks requiring localized or total flooding, and for rotating electrical units requiring a sustained discharge of carbon dioxide.

This new system, according to the manufacturers, automatically shuts off power units, closes windows and doors when fire strikes, but only after first sounding an alarm to permit employees exit from the fire area. Then the system discharges its fire-killing carbon dioxide.

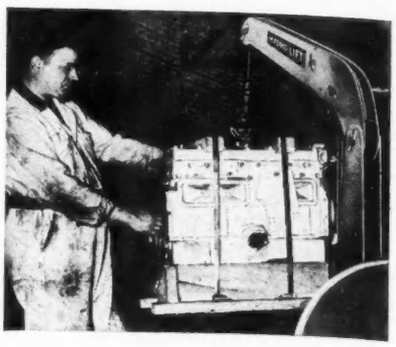
It is a flexible unit, readily adaptable to all needs a fire risk requires. It can be easily installed and serviced. Additional cylinders can be quickly added should a risk be increased later to require added protection.

***Use Free Postcard for More Details.***

OTC
NEW
SLIDE HAMMER
PULLER NO. 960
2 AND 3-WAY
INSIDE AND OUTSIDE COMBINATION
OUTSIDE
Pulling
Use 2 or
3 Arms
INSIDE
Pulling
Reverse
Cone
as shown
A UNIVERSAL TOOL of many time-saving uses in any shop. For outside pulling of gears, bearings, pinions and other close-fitting parts. For inside pulling of bearing outer races in blind holes, oil seals, grease retainers, etc. Wide range of capacities.
No. 960 complete includes 3 puller arms, 2-way and 3-way puller heads and adjusting cone. If you already have OTC No. 943-S Puller, you need only purchase these items (No. 960-A group) to make a complete tool.
WHEN YOU NEED PULLERS—think of OTC—the only COMPLETE Puller Line. Ask your OTC Jobber—or Write for catalog.
AUTHORIZED DISTRIBUTOR
OTC
MAINTENANCE TOOLS
LOOK for this Sign
OWATONNA TOOL CO.
335 CEDAR ST. • OWATONNA, MINN.
SLIDE HAMMER PULLER No. 943-T with 943 Bearing Cup Pulling attachment for INSIDE PULLING of outer races, oil seals, etc.
PILOT BEARING PULLER No. 954 for removing fly-wheel pilot bearings, motor, generator and magneto bearings and other inside pulling jobs.


### P19. Hydraulic Crane

A new 2000 lb. hydraulic truck crane has been introduced by the Cardinal Corp. of St. Paul, Minn. This truck crane designated



Hydro-Lift Model "T," is designed for mounting through the floor of the truck body in a rigidly braced socket. It can be used for loading and unloading engines, large truck axles and transmissions and other heavy loads.

The lift is easy to operate. A double acting hydraulic pump offers complete control over the load at all times. Loads may be raised or lowered as fast or as gently as desired. The manually-operated pump lifts full capacity load 77 in. in 37 sec. Pump may also be arranged with motor drive or connected with hydraulic system on the truck. A special hydraulic oil assures positive action in winter or summer temperatures.

Heavy-duty 45 in. boom is constructed of sturdy structural steel. Swings 360°. Boom folds down into frame when not in use. If a longer boom arm is desired, a 16 in. boom extension may be attached. Cable adjustment is automatic.

***Use Free Postcard for More Details.***

### P20. Cable Protector

The Cole-Hersee Co., Boston, Mass., has introduced a new cable protector, "The Griptite," for use on trailer plugs. This accessory replaces the hex nut normally furnished on trailer plugs. The heavy wire spring acts as a flexible extension of the plug, and affords a large solid gripping area. This strengthens the cable-plug connection, and armors the cable for a length of 5 in. It is made in two styles: No. 1122 for four-way plugs, and No. 1123 for six-way plugs.

***Use Free Postcard for More Details.***

(TURN TO PAGE 212, PLEASE)

**"What? Not our new truck?"**

# Spring comes in with a SPLASH right on your windshield

**...but with Trico's "Two Little Squirts" the view always is clear for safe driving**

Spring rains..."mud-pie" streets and highways...keep windshields blinded, make driving hazardous.

But NOT for the driver who has an automatic Windshield Washer!

A quick touch of the button squirts two tiny streams of water in the path of the wiper blades...and OFF goes the veil of road mist, dirt and grime.

Trico's "Two Little Squirts" are averting accidents, reducing nerve and eye strain, for nationally known fleets of trucks and buses throughout the United States. Vacuum-operated, they impose no drain on the battery. Quickly and easily installed.
Trico Products Corporation, Buffalo 3, N. Y.

**$6.25 PLUS INSTALLATION**

*Consult the automobile classified pages of your phone book for "where to buy."*

## New Products

(CONTINUED FROM PAGE 210)

### P21. Fiberglass Insulation

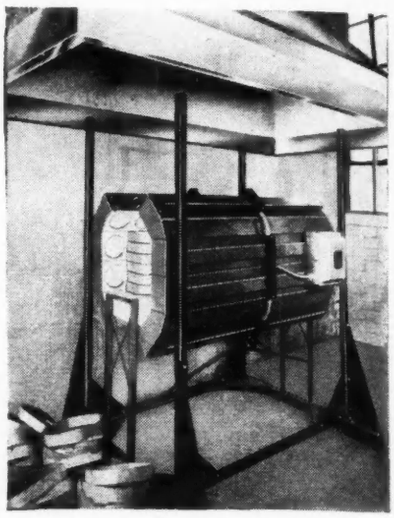
A new lightweight fiberglas insulation for use in home refrigerators, truck and trailer bodies, and other low-temperature equipment is now being marketed by the Building Materials Division of the Armstrong Cork Co., Lancaster, Pa. The new material, called XB-PF Fiberglas, will be manufactured by the Owens-Corning Fiberglas Corp.

XB-PF Fiberglas is resilient, odorless, non-corrosive, fireproof, sterile, and chemically stable. It will be available in standard rolls 54 in. wide, in ½ in. and 1 in. thicknesses. The ½ in. thickness is furnished in 50 ft. long rolls, and the 1 in. thickness in 25 ft. long rolls. Available in two densities: ½ lb. per cu. ft. and 1 lb. per cu. ft.

***Use Free Postcard for More Details.***

### P22. Lining Bonding

The L. J. Miley Co., Chicago, has announced its new Mileybond Infrared Brake Lining Bonding process for attaching Miley Black Gold brake linings to brake shoes without rivets. The new process has advantages in that it is more positive, safer,



quicker, more flexible and cheaper, according to the manufacturer.

This new process using infrared equipment bonds linings in from 9 to 12 min. from the time the shoes are placed in the bonder.

The same equipment is used as a debonder also, and the shoes come out as smooth and clean, with a few seconds scraping, as when they were first bonded, the manufacturer states. The original equipment comes in 3 sizes to fit various units of production, and includes the oven, clamps, bands and adhesive compound.

***Use Free Postcard for More Details.***

### P23. Ring Compressor

Owatonna Tool Co., Owatonna, Minn., announces a new ring compressor, designed especially for large truck pistons. It handles all the piston rings at once including the ring in the piston skirt.

This tool eliminates the need for using two ring compressors and reduces the possibility of breaking the bottom ring which sometimes happens without the mechanic's knowledge.

The tool is 6½ in. long overall, has a double clamp and four compression hands operated by an L handle and is ratchet controlled. Tension can be held constant and quickly released by depressing the ratchet pawl.

***Use Free Postcard for More Details.***

### P24. Engine Flush

A new compound for engine flushing has been developed by Gulf Oil Corp. Gulf Motor Flush is said to remove "cold weather" sludge, "high temperature" sludge, lacquer and varnish, and deposits from gasoline carried by lubricating oil through the engine.

Used at fixed periods or mileages, the new product is claimed to extend the length of time which may be allowed between engine overhauls.

***Use Free Postcard for More Details.***

### P25. Tire Black

Du Pont Tire Black, a ready-mixed liquid dressing for use on tires, rubber mats and running boards, and No. 7 Power Polish, a compound for use with electric

(TURN TO PAGE 214, PLEASE)


DESIGNED ON THE JOB
for "UNDER FIRE" duty

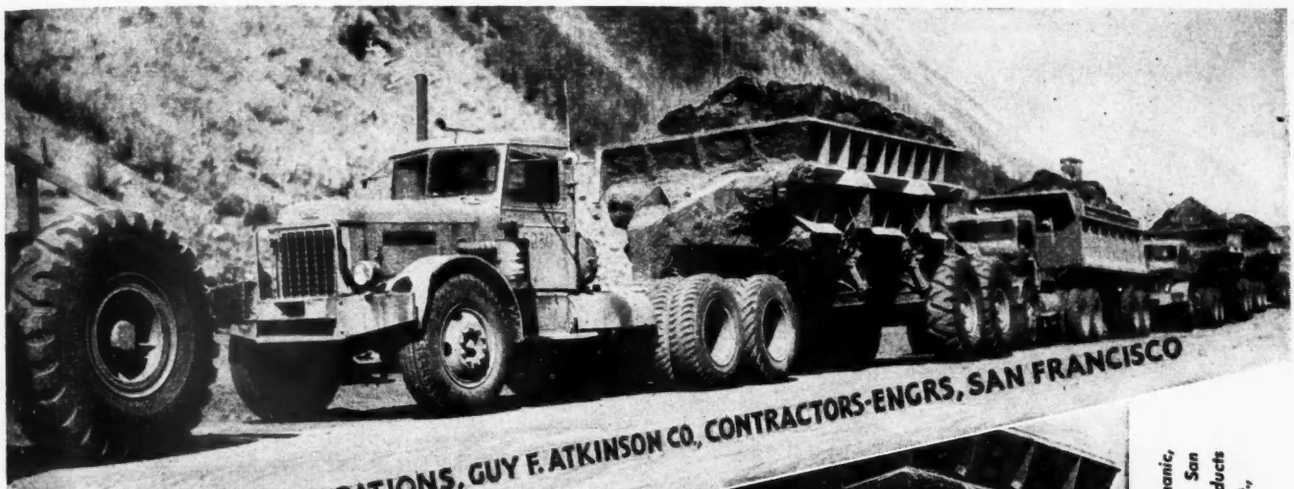
**Marion Bodies and Hoists are no "drawing board dreams." They are designed by field-experienced Marion engineers to meet the fire of actual work conditions.**

**Regardless of how rough or tough your loading, hauling and dumping problems are . . . there's a Marion Body designed on the job to fit your particular need. Write direct, or to your nearest Marion Distributor, for literature, prices and information.**

*General purpose body. Removable side and rear corner posts for quick converting to platform type body.*

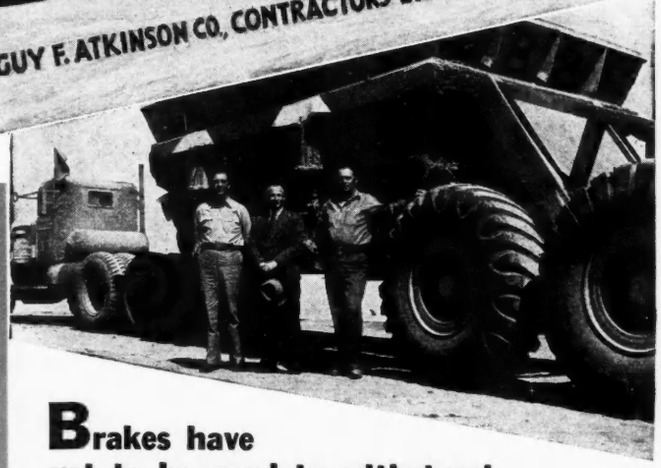
MARION
DUMP BODIES and HYDRAULIC HOISTS

MARION METAL PRODUCTS CO., MARION, OHIO



WORLD-WIDE OPERATIONS, GUY F. ATKINSON CO., CONTRACTORS-ENGRS, SAN FRANCISCO

# Braking 70-TON LOADS on 8% GRADES 16 HOURS a DAY with Lasco SUPER-BLOX



*Left to right: H. J. LUNDBERG, Master Mechanic, Guy F. Atkinson Co.; HARRY B. CLARY, San Francisco, Branch Mgr., Lasco Brake Products Corp.; O. T. DELLINGER, Purchasing Agt., Guy F. Atkinson Co.*

**Brakes have got to be good to withstand the savage grind of these giant wagons on mountain grades. Says F. BONNER, operations manager of GUY F. ATKINSON CO.:**

"We are using LASCO Super-Blox on our fleet of 31 Peter-Built Tractors and Utility and Southwest Trailers, and have found it to be very satisfactory. Our trucks and tractors are working 16 hous per day on two shifts, traveling 13 miles per round trip or approximately 2500 miles per week, with a gross load of approximately 70 tons. Each trailer has a capacity of 27 cubic yards, and travels 30 miles per hour on a road having about an 8% grade. They work on a five day week. We recommend LASCO Super-Blox unhesitatingly to any one with a hauling problem."

Signed: F. BONNER, Operations Mgr.,
GUY F. ATKINSON CO.

**2 FRICTIONS**

**Victory type high friction and Logger type low friction in segments, slabs, and Super Blox to meet every requirement.**

MOUNTAIN MASTER

LASCO BRAKE PRODUCTS CORP., Mfrs.
LAHER SPRING & TIRE CORP., Distr.
*8 Western Plants*

**Lasco SUPER-BLOX**

## New Products

(CONTINUED FROM PAGE 212)

automobile-polishing machines have been added to the No. 7 line of chemical specialties by E. I. Du Pont de Nemours and Co., Wilmington, Del.

Du Pont Tire Black is retailed in pint cans and is ready for use without thinning. It dries quickly after application with a paint brush or swab, and gives a durable, black satin finish.

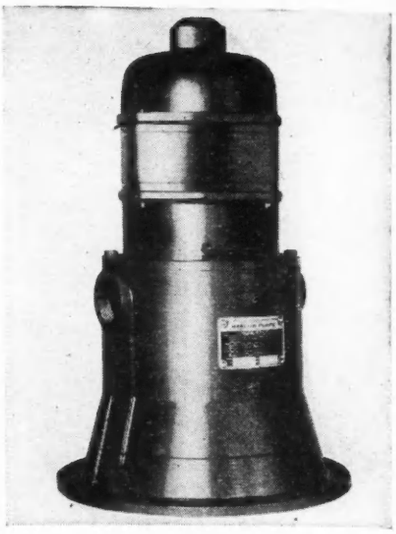
No. 7 Power Polish is especially suitable for use with electric polishing machines on automobiles, trucks, buses or any other surfaces which are finished with lacquers or enamels. It is said to clean and polish quickly.

***Use Free Postcard for More Details.***

### P27. Fueling Pumps

Featuring valveless construction that enables them to prime automatically even after standing idle for periods, a new series of three centrifugal pumps has been introduced by Marlow Pumps, Ridgewood, N. J., for transfer and dispensing service.

The self-priming feature is added to the efficiencies of centrifugal action through a new design that does away with valves within the pump. Instead of the usual



valves, the new centrifugals have ingenious chambers so proportioned as to retain priming fluid. Smooth, automatic priming continues as long as the liquid has not evaporated or been intentionally drained. Faulty foot valves do not prevent repriming of pumps; the pumps rapidly reprime the suction line.

Handling 100 octane gasoline as easily as No. 3 oil, kerosene, or diesel fuel, the new centrifugals operate efficiently on high suction lifts and do not vapor-lock, it is stated.

***Use Free Postcard for More Details.***

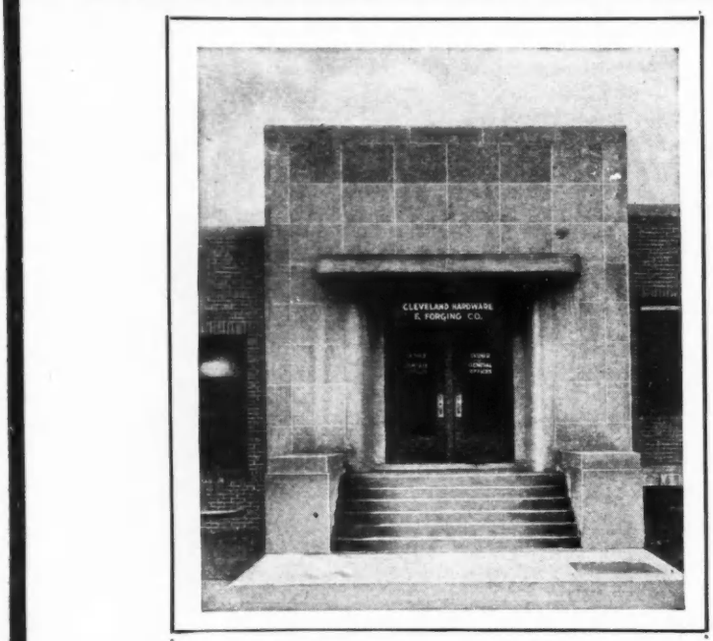
### P28. Charging Timer

A small, compact timer for battery charges, ovens, dryers, extractors and laundry equipment is manufactured by the Eagle Signal Corp., Moline, Ill. Designed by Mast Development Co., Inc., Davenport, Iowa, an important detail of its construction is the transparent poly-styrene housing which permits visual inspection of the electrical contracts.

The housing is designed so that all the holes and openings can be molded and the parts pushed into place and locked there by the self-tapping screws that hold on the cover. The large pointer can be turned in either direction to the required setting without damaging the timer and there is also a "hold" position at which point the load circuit can be turned "on" without starting timing.

***Use Free Postcard for More Details.***

(TURN TO PAGE 217, PLEASE)


Main Entrance to Offices of Cleveland Hardware & Forging Co.

**"CLEVELAND" IRONS - SINCE 1881**

| | |
|---|---|
| Binding Hooks | End Gate Staples |
| Body Braces | Flare Board Braces |
| Body Corner Irons | Flare Board Irons |
| Body Rods | Bus Door Controls |
| Corner Irons | Skid Eye Bolts |
| End Gate Chains | Stake Plates |
| End Gate Chain Eyes | Stack Rack Connections |
| End Gate Fasteners | Door Checks |
| End Gate Hinges | Towing Hooks |
| End Gate Hooks | Wrought Stake Pockets |
| End Gate Loops | Binding Hooks and Knobs |

**Complete Line of "Cleveland" Cab Door Locks and Locks for Paneled Body Jobs**

**CATALOG 22-B ON REQUEST**

*The* Cleveland Hardware & Forging *Co.*

Established 1881

3264 East 79th St. Cleveland 4, Ohio

**"I wish you'd stop referring to the filing cabinets as the 'Lost and Found' department!"**

## New Products

(CONTINUED FROM PAGE 217)

### P29. Bonding Agent

Rubber gaskets can now be adhered to refrigerator and automobile doors by a cold-setting vinyl base cement which is also effective in bonding plastics to plastics or plastics to non-plastics, according to the manufacturer, Schwartz Chemical Co., Inc., New York.

Called Rez-N-Glue, the transparent water-white adhesive is also used for bonding rubber, wood, metal, glass, leather and fabrics to themselves or to each other. The fast-drying all-purpose cement has good wet "grab", requires only a one-surface application, is non-staining and remains permanently flexible. It can easily be applied by brush, roller or spray and is resistant to water, oil, gasoline, vermin and mould.

***Use Free Postcard for More Details.***

### P30. Hydraulic Jack

The J-4, a new 4-ton hydraulic floor jack, has been announced by the Manley Mfg. Div. of American Chain & Cable Co., Inc., York, Penna.

A one-piece cast steel frame enables this new jack to stand rough service—especially on uneven floors and bumpy driveways. It has ball bearing casters, for zig-zagging into those hard to get at spots and super-finished hard chromium plated ram makes oil leaks practically impossible. The heart of the jack is a complete, sealed-in-steel unit, protected from dirt and dust.

A new feature is "Finger Tip Control" to lower and position quickly and easily.

***Use Free Postcard for More Details.***

### P31. Ignition Coil

A new type ignition coil is announced by Standard Motor Products, Inc., Long Island City, N. Y.

"Triple protection" featured in the coil consists of safeguarding the coil against water even when immersed; protection against leakage of high-tension current from the high-tension socket to the primary terminals along the surface of the bakelite top or through it; protection against failure caused by accidental loosening of the high-tension cable in the coil socket.

The cap, of hi-dielectric red bakelite, is shaped into a sharp-cornered pagoda that makes surface leakage of high-tension current virtually impossible. The ring is made of high quality soft rubber, designed to compress easily. The top, of the same hi-dielectric bakelite as the cap, is of extra heavy cross section construction that not only practically eliminates corona between the primary terminals and the high-tension socket but also reduces the possibility of high-tension current firing through the bakelite when plugs or rotors are bad.

***Use Free Postcard for More Details.***

### P32. Protective Coating

Sherolite Products, Inc., Caldwell, N. J., has perfected Sherolite Liquid Celofilm, to protect chrome finishes and all polished metals from corrosions, rust, tarnish, etc.

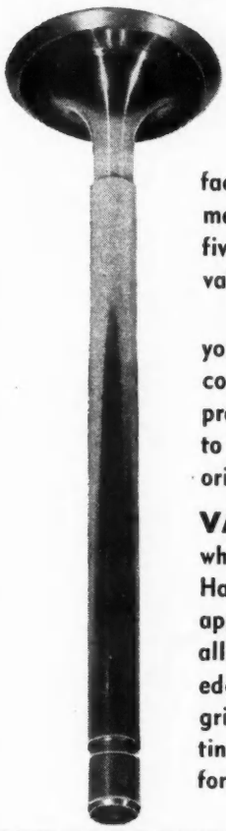
The manufacturer states that this coating will not rub off during handling or shipping, since it is an improved, quick-drying, colorless coat that dries in six minutes and hardens in 45 minutes. Its important function is to safeguard the finish and lustre of polished metal surfaces for unlimited lengths of time after a single application.

The material can be sprayed or brushed, equally achieving a durable, transparent

(TURN TO PAGE 218, PLEASE)


*Here's where you can cut costs*

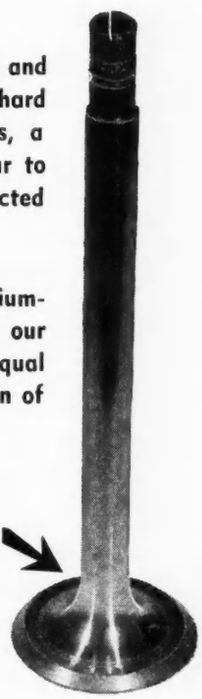
**READ HOW VALVES LIKE THESE CAN SAVE YOU MONEY**



75% of your used exhaust and intake valves can be hard faced by our highly-developed process, a method by which we can give you four to five times more mileage than non-protected valves;

OR

your high-priced, hard seated and sodium-cooled valves can be hard faced by our process to give you again mileage equal to or better than new, and at a fraction of original cost.



**VALVES ARE AT THEIR BEST** when hard faced The Cleveland Hard Facing way—more generously applied wear and corrosion resistant alloys — thicker seats — broader edges—WHICH MEANS—more re-grinds—increased resistance to pitting and burning—more mileage before down-time for grinding.

Gather up those used valves and send them in or

**MAIL THIS COUPON TODAY**

TO

**CLEVELAND HARD FACING, INC.**

2177 W. 28th St., Dept. A

Cleveland 13, Ohio

*Please send me price list and complete information on Hard Facing my valves.*

NAME_____

STREET_____

CITY_____

STATE_____

## New Products

(CONTINUED FROM PAGE 217)

coating that is glazed and corrosion-resistant. The liquid is thin and workable, and one gallon, when sprayed, covers over 600 sq ft. of surface, a thin coat being ample for ordinary protective requirements.
***Use Free Postcard for More Details.***

### P33. Bearing Remover

An improved model of the Thompson bearing remover is announced by Cam Tool Co., Inc., Oakland, Cal. The improvement eliminates rotation of the extraction collet, producing a straight pull and preventing the collet from being twisted off in case it should bind on a bushing, button die or Hyatt type bearing.

This improvement is attained by addition of a pulling sleeve to the original model. The sleeve is threaded lefthand outside and righthand inside. The pulling collet is inserted in the bearing and tightened thumb tight. A wrench is then applied to the pulling sleeve and rotation results in a compound pull which is said to remove even the tightest bearing and bushings with ease.
***Use Free Postcard for More Details.***


NOW!

a single assortment for 95% of all speedometer jobs!

UNITED'S NEW S-9

United's new S-9, a single assortment of only nine assemblies, enables you to give complete speedometer cable and casing service to 95% of all popular cars! See how many ways the S-9 simplifies your work:
no cutting... no adjustments... no fitting... no terminals to install...
no special tools... no need for big inventories... no comebacks!
Ask your NAPA Jobber about the S-9 Assortment... soon!
United Parts Mfg. Co., 1250 W. Van Buren St., Chicago 7.

UNITED

HYDRAULIC BRAKE PARTS • BRAKE CABLES
SPEEDOMETER CABLES • FUEL PUMP PARTS

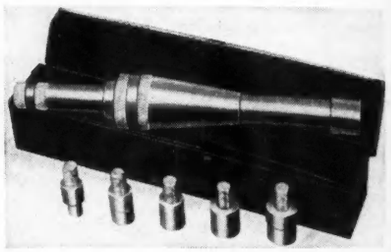

### P34. Engine Cleaner

A new heavy duty radiator and block cleaner that cleans in one operation and requires no reverse flushing is now being manufactured by Floz-on Mfg. Company, Pittsburgh, Pa.

Known as Floz-on Radiator and Block Cleaner, this new product is said to dissolve grease, rust, and scale in one operation and to clean radiators and blocks in 30 to 45 min. with the engine idling. The product is non-poisonous and is non-injurious to rubber and metal parts. It is not necessary to add an inhibitor or neturalizer after using.
***Use Free Postcard for More Details.***

### P35. Clutch Tool

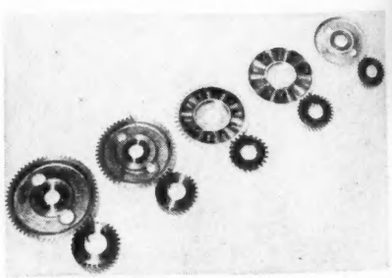
A new clutch aligning tool developed by Bonney Forge and Tool Works, Allentown, Pa., is an essential tool for every shop whenever a clutch is torn down for refacing, to replace springs or pressure plates.



This set is machined from high quality steel and has a plated finish. The pilots are sized to handle over 90 per cent of the clutches used today.
***Use Free Postcard for More Details.***

### P36. Aluminum Timing Gears

Dexter Machine Products, Inc., Chelsea, Mich., has announced a wide line of aluminum timing gears for the replacement and fleet trade available for all makes of cars and trucks now using aluminum timing gears as standard equipment. The company also supplies aluminum gears for Chevrolet cars and trucks now using aluminum timing gears a replacement for composition gears on models going back as far as 1937.



Dexter aluminum timing gears are identified by the name "Sylvan" and are said to give a life of as much as 150,000 miles in truck operations. In addition to such durability, as compared with other types of timing gears, Sylvan gears are said to be manufactured by precision methods which assure quietness of the timing gear set.
***Use Free Postcard for More Details.***

(TURN TO PAGE 222, PLEASE)

# *Your NAPA Jobber is a Good Man to Know!*

**1 STANDARD OF QUALITY**
**—always equal to or surpassing the parts replaced.**

**1 SOURCE OF SUPPLY**
**—for parts servicing cars and trucks of *all* makes and ages.**

**1 JOB TO DO**
**—to give all repairmen the fastest, finest, most complete service on all parts they need—whenever they need them.**

Your NAPA Jobber is an independent businessman. His first—and only—function is to serve you. You can depend on his complete cooperation every time you call.

**NAPA** *is the largest Independent Parts Organization in the Industry!*

N·A·P·A
National Automotive Parts Association
*Assurance of Quality*

DITTMER TRANSMISSION GEARS
Allied WISCONSIN PISTONS · SLEEVES
UNITED PARTS FUEL PUMP HYDRAULIC BRAKE SPEEDOMETER and BRAKE CABLES
Monmouth ENGINE BEARINGS CLUTCH PLATES & PARTS CHASSIS PARTS
TRICO VACUUM-OPERATED SAFETY PRODUCTS
Allied GRAPHO WATER PUMPS PARTS · PACKING
BROWN LIPE GEAR BOXES
American Brakeblok AXLE LINING · CLUTCH FACINGS FAN BELTS · RADIATOR HOSE
Buffalo MUFFLERS
MicroTest GEARS · AXLE SHAFTS
Allied A.P.C. VALVES
STANDARD GREASE RETAINERS
DETROIT UNIVERSAL JOINTS
BALKAMP PARTS FOR FORD CHEVROLET · PLYMOUTH AND ALL POPULAR CARS
CELORON TIMING GEARS
BRIGGS SHOCK ABSORBERS
Allied RAYMOND VALVE SPRINGS
RARITAN ROLLER BEARINGS
ECHLIN IGNITION PARTS
BUFFALO FIRE EXTINGUISHERS
Allied PRECISION PISTON PINS
DUCKWORTH TIMING CHAINS
PURITAN BRAKE FLUID
MARTIN-SENOUR AUTOMOTIVE FINISHES
Belden WIRE AND CABLE
New Britain HAND TOOLS
FEDERAL BALL BEARINGS
Spicer UNIVERSAL JOINTS

## New Products

(CONTINUED FROM PAGE 218)

### P37. Tire Remover

The Simplex truck tire remover, a product of Southwest Tool & Equipment Co., San Antonio, Texas, is designed to remove stuck or frozen truck tires from rims or wheels. Operating with a simple hydraulic mechanism, a maximum equal pressure of 25,000 lb. removes all sizes of truck tires from 6:50 x 16 to 11:50 x 20.

Designed for mobility, the machine is made of cast aluminum weight approximately 275 lb. The company states one man can operate the machine average time five to seven minutes. Safety feature of equal pressure prevents danger of blown lock rims.

***Use Free Postcard for More Details.***

### P38. New Lubricants

Two graphitized lubricants known as "Miracle Power" and "dgf-123" are now available from the AP Parts Corp., Toledo, Ohio.

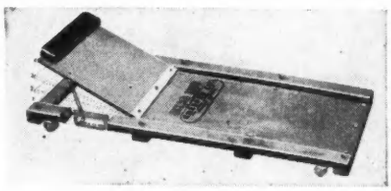
Miracle Power is used in motor oils and gasolines, while dgf-123 provides a dry graphite pre-lubricant for application to engine parts before assembly. In Miracle Power, synthetic colloidal graphite is suspended in a fine grade of pure, light petroleum oil. In dgf-123, manufactured under U. S. Patent No. 2-426-983, the graphite substance is suspended in alcohol and carbon tetrachloride. When used as directed, either of the two super lubricants gives all metal surfaces a thin graphoid film.

Having a high attraction for oil, the colloidal graphite in the two products is said to give double lubrication wherever used. First, the graphoid film minimizes metal to metal contact by completely graphitizing all metal surfaces. This insures dry lubrication in cold starts and during the temporary breaks occuring in the oil film when engine is operating. Second, the tendency of graphite to attract and retain oil means less oil film breakage, less dry starts due to oil drainage when the engine is not operating.

***Use Free Postcard for More Details.***

### P39. Adjustable Creeper

A new head lift adjustable creeper has been designed by Moto Parts Co., Inglewood, Cal. The head lift assembly rests on cross frame which gives maximum



strength. The head pillow is filled with rubber Hair Tex and covered with plastic. It is oil-proof and water-proof.

Made of tempered masonite. All wood parts of selected Red Oak, oil treated.

***Use Free Postcard for More Details.***

### P40. Wrecking Crane

A 3 ton wrecking crane designed especially for a Jeep, has been developed by the Manley Mfg. Div. of the American Chain & Cable Co., Inc., York, Pa.

Made of tubular steel, it is streamlined, fast, efficient. Low dead weight of 300 lb. means Jeep can haul in bigger, heavier payloads.

It works on ball bearings and is self lubricating. A big safety factor is the Tru-Lay Preformed Cable. It works smoothly and winds evenly by means of a special control. Just stop cranking and the automatic brake holds the load—there are no ratchets or pawls to operate—to slip or work loose.

All gears, cable; in fact the entire working mechanism is enclosed against dirt, grit and bad weather. Installation is simple; it can be hooked up for action by making two connections.

***Use Free Postcard for More Details.***

(TURN TO PAGE 224, PLEASE)

**"How you coming with the flat, George?"**


# WHITE ARMY HALF TRACKS

Like New — Low Mileage

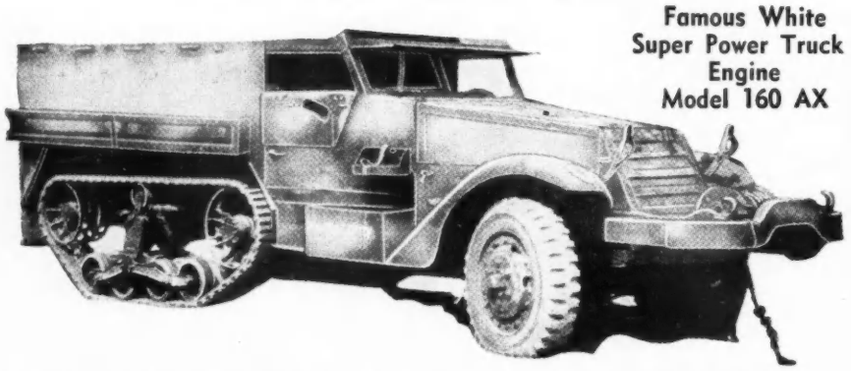
At less than 10% of Government Cost

**$550** without Winch — **$650** with Winch

F.O.B. Birmingham, Ala.

Approximate Weight 14,500 lbs.

Famous White Super Power Truck Engine Model 160 AX



Powerful 386 cu. in. 148 H.P. White Model 160 AX Motors

Front Mounted 14,000 lb. Winch

A-Frame over front or bed in back can be mounted

Dump Body—up to 5 yards—can easily be installed

Ideal for use in mud, sand, soft or rough ground, woods and steep grade

SUGGESTED USES

- Logging
- Saw Mills
- Oil Fields
- Farming
- Dragline
- Gravel
- Wrecking
- Contracting
- Scrap Yards
- Power Lines
- Auto Dismantling

Many can now be seen in operation

We maintain a complete stock of parts for your vehicles.

White Truck Owners—Buy one or two of the spare motors—costs less than an overhaul job—$2.75

HYDRAULIC BRAKES SPEED 45 MPH TOW WORK

**SOUTHERN SCRAP MATERIAL CO., LTD.**

**4163 Bienville Street New Orleans, Louisiana**

***Telephone: AUdubon 3761***

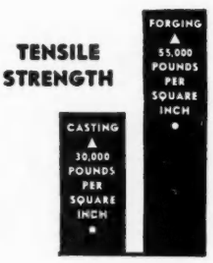
# Finer because they're Forged

. . . for connecting copper, aluminum and other thin-wall metal tubing.

# IMPERIAL TUBE FITTINGS*

## EXTRA FACTOR OF SAFETY FOR ALL WORK

Brass forgings are over 80% stronger than brass castings. That's why forged fittings are able to withstand higher pressures—provide an extra factor of safety—make possible elimination of dead weight.



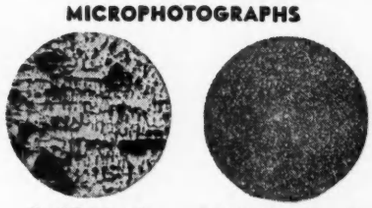

## STAND UP BETTER UNDER VIBRATION AND IMPACT

The far higher elongation factor of forgings as compared to castings enables forged fittings to stand up better under hard knocks, mechanical shock and vibration. Fiber-like flow line structure of metal also provides assurance against fatigue failure.

## POSITIVE PROTECTION AGAINST SEEPAGE

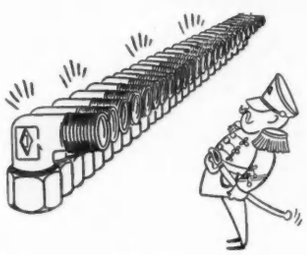
Forgings have far denser grain structure than castings. Note microphotographs. That is why forged fittings assure against porosity, blow holes and concealed defects — prevent seepage of even hard-to-hold materials.

MICROPHOTOGRAPHS



CAST BRASS FORGED BRASS

## GREATER UNIFORMITY SPEEDS INSTALLATION



Dimensions of forged fittings are held within extremely close limits. The resulting uniformity of size facilitates speedy, secure wrench grip — makes forged fittings easier to install. Sharp detail, uniform contour and smooth surface of forged fittings enhance the appearance of the equipment on which they are used.

**THE IMPERIAL BRASS MFG. COMPANY, 1209 W. Harrison St., Chicago 7, Illinois**

* Fittings have forged bodies on elbows and tees. Straight fittings made from brass rod.

***Write for Folder No. 352. Gives complete range of types and sizes.***

**IMPERIAL**

**Brass Fittings • Flexible Fuel Lines • Tube Working Tools**
**Barrel Faucets • Battery Hydrometers • Welding Equipment**

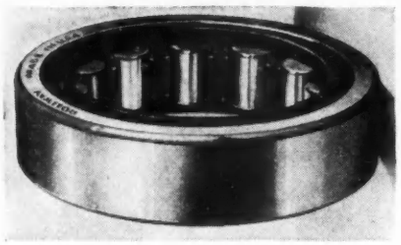
## New Products

(CONTINUED FROM PAGE 222)

### P41. Roller Bearing

The Rollway Bearing Co., Inc., Syracuse, New York, announces Tru-Rol, a new precision cylindrical roller bearing with steel retainer. The Tru-Rol bearing complements the Rollway lines of cylindrical roller, radial, and thrust bearings.

New features are: The new one-piece steel retainer with pockets having deep, broad, double flanges, or guide lips in which the rollers are kept in alignment,



insures long life by the correct guiding of the rollers.

Additional bearing components are the outer race with deep, accurate ring grooves in the inside diameter into which fit the heavy, substantial snap rings that retain the roller retainer and rollers in the outer race which make up the roller assembly. The inner race is separate and is interchangeable.

Tru-Rol bearings are manufactured in a range of sizes conforming with S. A. E. standards for roller bearings.

***Use Free Postcard for More Details.***

### P42. Low Pressure Tire

A new low pressure tire has been announced by United States Rubber Co.

Known as the new U. S. Royal Master, the tire embodies the "air ride" principle of low pressure construction. "Greater mileage is achieved by a 25 per cent deeper tread of 'tempered' rubber." The new tire is larger and softer due to its greater air capacity at less pressure. As a result, it rides smoother and easier and is said to be a much stronger and safer tire.

***Use Free Postcard for More Details.***

### P43. Turn Signal

The Royson Heavy-Duty Directional Signal has recently been completely redesigned and modernized.

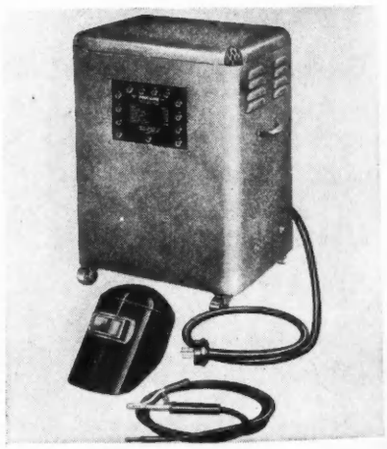
The flasher and fuse have been included in the control arm, eliminating the need of mounting a separate fuse and flashing unit. As a result connections are minimized and even these are easy to make quickly with "AMP" solderless connectors which are furnished.

A high dielectric switch plate replaces the old metal one. The switch has been strengthened and improved and now carries a lifetime guarantee when used in the new control arm.

***Use Free Postcard for More Details.***

### P44. New Welders

The Foster Mfg. Co., Buffalo, New York, announces the release of eight Welding units, ranging in price from $39.50 to $225.00 list, complete with accessories and



helmets. These new welders are recommended for automotive and general industrial maintenance, repair and production welding. Job tested, they have proven economical both in performance and dependability the company states.

***Use Free Postcard for More Details.***

(TURN TO PAGE 226, PLEASE)


# They Go Together...

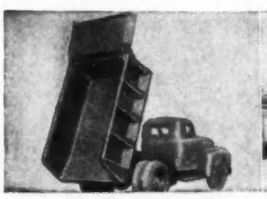
## THE New TRUCKS and ANTHONY HYDRAULIC EQUIPMENT..

*Anthony Model D-50 Garbage Body*

*Model D-6 Contractor Body —Super Hoist.*

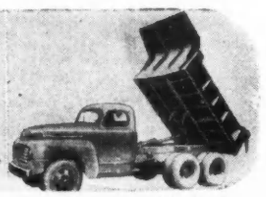
Anthony Company has simplified the entire problem of matching the proper dump bodies with the proper sized trucks. It is easier to recommend and sell Anthony Hydraulic Products on 1948 trucks because they are built to "go together."

Write for "Easier Dump Truck Sales."

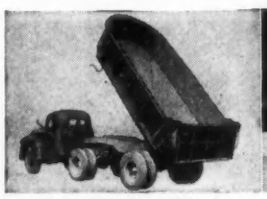


*Anthony Model JIR-14 Rock Body.*

*Model X-150 All Steel Platform Body with Hoist.*

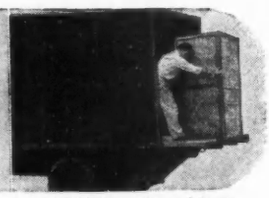


*Anthony "Super" Hoist — Heavy Duty. "J" Body.*



*Model TH-88 Semi-Trailer Hoist, "R" Body.*

*Anthony "Lift Gate" loads-unloads trucks.*



*"Lift Gates" used in 75 industries.*

*Anthony "Lo-Dumper" Farm Hoist.*

*Model D-18 Street Dept. and Highway Body.*

ANTHONY HYDRAULIC

**ANTHONY COMPANY**

**Dept. D-83, Streator, Illinois**

*Distributors Throughout America*

# *Fleet Owners,*

## IT PAYS TO DO YOUR PAINTING

## in a Completely Equipped DeVilbiss Paint Shop

## that saves time and money!

Streamline your truck painting operations with a Complete DeVilbiss Paint Shop. With this modern equipment you'll refinish more vehicles better, faster and less expensively.

Here in a single package is all the equipment you need to keep your trucks looking new and beautiful. The dust-proof spray booth eliminates time wasted in lengthy sanding and polishing out of dirty finishes. Scientific illumination enables operators to see better and work faster with less effort. Spray guns—identical with those widely used on automotive production lines, let operators properly apply paint, as fast as it is practical to work. And an air compressor with volume output keeps guns and pneumatic tools working at full capacity without waiting for pressure build.

Ask your DeVilbiss distributor for complete details on these paint shops that will save you time and money.

**THE DEVILBISS COMPANY • Toledo 1, Ohio**

Canadian Plant: WINDSOR, ONTARIO

***These four essentials comprise the***

**COMPLETE PAINT SHOP**

1. **A SPRAY BOOTH**...providing adequate exhaust, scientific illumination and positive dust protection.
2. **AN ASSORTMENT OF SPRAY EQUIPMENT** . . . for factory quality results on all kinds of jobs with any spray material.
3. **AN ADEQUATE AIR COMPRESSOR** . . . to provide ample low cost air for all paint shop and service requirements.
4. **HOSE AND CONNECTIONS** . . . designed and built specifically for spray painting service.

# DE VILBISS

*means* **Quality** *in all four . .*

SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS



*Use postage-paid card inserted at page 137 for free information on advertised products*

## New Products

(CONTINUED FROM PAGE 224)

### P45. Plug-Type Terminals

Aircraft-Marine Products, Inc., Harrisburg, Pa., announces a new plug-type terminal for 16-14 wire size which provides an easy, convenient method of installing or replacing connections on leads in electrical appliances, automotive equipment, electrical equipment on machinery, and other devices.

Application to the wire is accomplished in a matter of seconds by means of an AMP hand tool, pneumatic hand tool, or by foot or power presses. The specially designed AMP pressure crimp is positive, permanent, and absolutely uniform. The resulting connection has high electrical conductivity and corrosion resistance.

***Use Free Postcard for More Details.***

### P46. Fuel Additive

Pennsylvania Refining Co. announces production of Penn Drake Gumout, a new liquid carburetor and fuel system cleaner which also prevents gas line freezing.

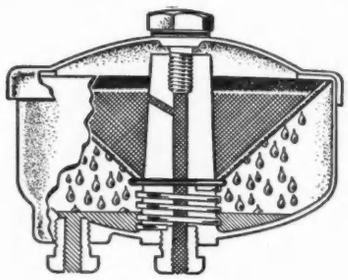
One pint of the liquid added to ten gal. of gasoline, once a month or every 1000 miles of driving, is said to completely dissolve all gum and foreign deposits, keeping carburetor jets, needle valves and the entire fuel system open and clean.

Gumout also absorbs water present in the gasoline tank thereby preventing ice formation. It is harmless to metals, gaskets, leathers, and fuel lines.

***Use Free Postcard for More Details.***

### P47. Oil Filter

The new filterall oil filter developed by the Filterall Co., Inc., Glendale, Cal., features a permanent-type, porous metal filter of new design. The Removable, porous



metal cartridge may be simply and qiuckly cleaned by simple immersion and agitation in gasoline. This restores its original filtering capacity.

***Use Free Postcard for More Details.***

### P48. Plastic Handles

Two departures from former designs of plastic-handle screwdrivers have been made by the Plomb Tool Co., Los Angeles, Calif. First, the handles are re-shaped to fit the hand better, and second, an entirely different plastic is now used.

The hand-fitting handles are rounded and larger through the palm section and smaller in diameter at the end where the little finger grips. Lengthwise ridges, or flutes, prevent hand slippage. A square section near the bottom has depressions to allow a positive grip by the thumb and forefinger, which provide 50 to 55 per cent of the total turning power of the hand.

***Use Free Postcard for More Details.***

### P49. Automatic Heater

An automatic heater to protect winter shipments of perishable goods in transit and which combines safety and efficiency with unattended operation for more than two days at a single filling has been introduced by Preco, Inc., Los Angeles, Calif.

The Preco Automatic Heater, using methanol, has a burning rate of 6000 BTU per hour and is equipped with a rugged, built-in thermostat which is adjustable for any temperature from 30 deg. F to 60 deg. F. Fuel capacity is 5¼ gal.

Among its safety features is the heater's explosion-proof design with the flame located above the fuel level. A fiberglass wick raises fuel to the burner and in turn acts as a safety valve. The heater is built with a wide base and low center of gravity to prevent upsetting and all surfaces of the tank are smooth and slope away from the flame area for additional protection.

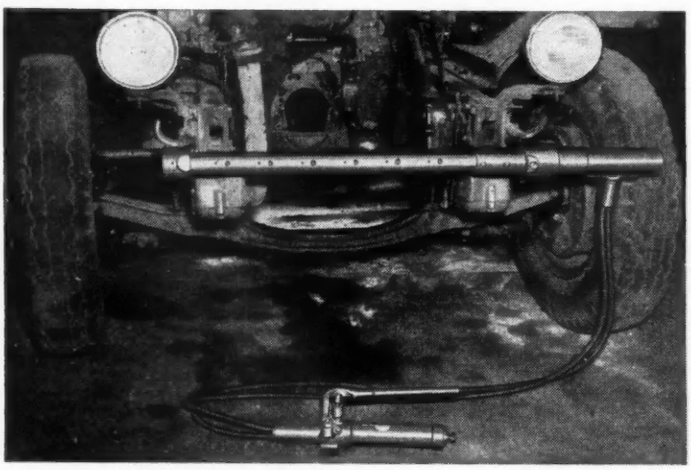
The Preco Heater is 15¾ in. in diameter and is 23½ in. high. It weighs 35 lb. empty; 70 lb. when full. The tank bottom is recessed to permit easy stacking.

***Use Free Postcard for More Details.***

(TURN TO PAGE 228, PLEASE)


The POWERZPLUS push-pull JACK

makes *difficult* jobs easy



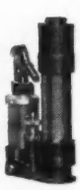
Pulling frame

. . . just ONE of the dozens of uses

There's no body or frame repair job too tough or too complicated for Power-Plus *push-pull* hydraulic Jacks. Power-Plus Jacks — either self contained units or remote controlled—operate in any position, even upside down. They have full power for both *push* and *pull* service — with safety valve protection.

Power-Plus fittings are easily and quickly attached and each fitting is specially designed for its specific job. (Note the simplicity of operation in the picture above.) Power-Plus *push-pull* Units—made in 10 and 20 ton capacities—will handle any body, fender, or frame repair job that comes to your shop.

*Send for complete catalog.*



PERFECTION POWERZPLUS TOOLS

G. A. C. MANUFACTURING CO. Ashland, Ohio

# FRAM *Introduces*

# 2 NEW PRODUCTS

## to help keep fleet costs down!

### ⬅ *NEW* FRAM GASOLINE FILTER

***Protects finely adjusted modern carburetor mechanisms.*** Fram's *new* Gasoline Filter removes BOTH solids and water from gasoline! Reduces carburetor troubles, engine breakdowns . . . and *cuts fleet operating costs!* Four tailor-made models service 85% of all *cars and light trucks*, plus a universal model which can be installed on any truck . . . one *replacement cartridge* fits all models and can be changed while car or truck is being gassed. Ask your Fram jobber to show you the *new* Fram Gasoline Filter and explain why it means real savings to you. Then order a supply for your fleet!

### *NEW* FRAM CRANKCASE AIR FILTER ➡

***Protects the engine where MOST dirt enters the crankcase.*** Cleans the air your engine breathes! Replaces conventional breather cap. Helps prevent wear . . . saves you costly breakdowns and repairs. Fram's *new* Crankcase Air Filter is low in cost . . . an amazing overhaul-saver because it guards the inner working parts of your engine in a way that was never possible before. Can be easily installed *while car or truck is being gassed.* Universal adaptors fit most oil filler pipes. Three sizes of replacement cartridges for ALL operating conditions fit all adaptors. Order a supply from your jobber today.

### *FAMOUS* FRAM FILCRON OIL FILTER

Cleans the oil that cleans your motor! Fram's *famous* Filcron Filter prevents wear caused by dirt, dust, grit, sludge and abrasives . . . because it keeps these harmful contaminants out of the oil. Actually removes particles as small as ONE MICRON (.000039 of an inch in size). It pays to specify "Fram Filcron" when you order filters or cartridges! Fram Corporation, Providence 16, R. I. *In Canada:* J. C. Adams Co., Ltd., Toronto, Ontario.

# FRAM *Oil·Air Gas* FILTERS

# can cost you plenty!

## PROTECT YOUR FLEET WITH C-O-TWO

A truck fire on the road or in the garage means loss of equipment, loss of cargo, upset schedules and irate customers.

Play safe and protect your whole fleet with modern C-O-TWO Fire Extinguishers. C-O-TWO is fast, clean, non-damaging carbon dioxide . . . stops fire in seconds, then disappears without a trace. It is safe as well as highly effective on gasoline, oil, paint and electrical fires . . . harmless to cargo, truck finishes, motors and wiring. C-O-TWO Fire Extinguishers are designed for quick, positive action in an emergency.

Be sure that every truck in your fleet is equipped with the correct size C-O-TWO Hand Portable Fire Extinguisher and that your garage is fully protected with the right kind of C-O-TWO Fire Protection Equipment. Let the C-O-TWO Fire Equipment Company Distributor in your area check your fire protection needs now before fire strikes. Remember . . . tomorrow may be too late. Write us today for your free copy of the booklet, "Kills Fire . . . Saves Life."

C-O TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY
Sales and Service in the Principal Cities of United States and Canada
AFFILIATED WITH PYRENE MANUFACTURING COMPANY


# New Products

(CONTINUED FROM PAGE 226)

## P50. Waste Storage Cans

A new container for storing oily rags and similar inflammable waste is announced by The General Detroit Corp., Detroit, Mich., called Safe Guard Combustible Waste Cans, the new containers are available in both pedal and manually operated models, and in 7, 9, 12 and 15 gal. sizes.

Features of the new containers include a cylindrical body which extends all the way to the floor; a bottom which is recessed and soldered into the can for extra strength; and carrying handle which is riveted to the body of the can as well as to the lid. Heavy circular beading around the top and bottom serves to reinforce the can. The entire container is constructed of heavy gauge rust-proof zinc coated steel.

***Use Free Postcard for More Details.***

## P51. Parts Cleaner

The Klene-Ezy parts cleaning machine has been recently introduced for use in metal-working plants and in garages and repair shops. This machine is said to assure fast and thorough removal of grease, oil, sludge, carbon or other deposits resulting from road dirt or operations in metal-working plants.

The swirling, turbulant solvent is regulated by the agitating mechanism. Sturdily built, with hinged cover and specially tempered heavy steel shell, it may be installed near any electric outlet. It can be used for hot or cold washing and has convenient drains for muck removal, and provision for reclaiming solution used. The solvent chamber is 30 gal. capacity.

The device is manufactured by Cincinnati Cleaning & Finishing Machinery Co., Ironton, Ohio.

***Use Free Postcard for More Details.***

## P52. Tire Gage

The new Evr-Rite Air Line Gage, announced by The Dill Mfg. Co., Cleveland, Ohio, is designed for accurate checking of the new low pressure tires.

Each Dill inflator includes a spare gage unit. Whenever the gage in the inflator becomes inaccurate, it can be replaced immediately with the spare gage unit and the inaccurate gage unit returned to the factory for recalibration.

Another feature of the Evr-Rite is the magnifying lens for quick, easy reading. Pressure reading registers automatically as the chuck is applied to the valve. Gage calibrations are 15 to 55 lb. in 1 lb. units, and 55 to 125 lb. in 5 lb. units.

***Use Free Postcard for More Details.***

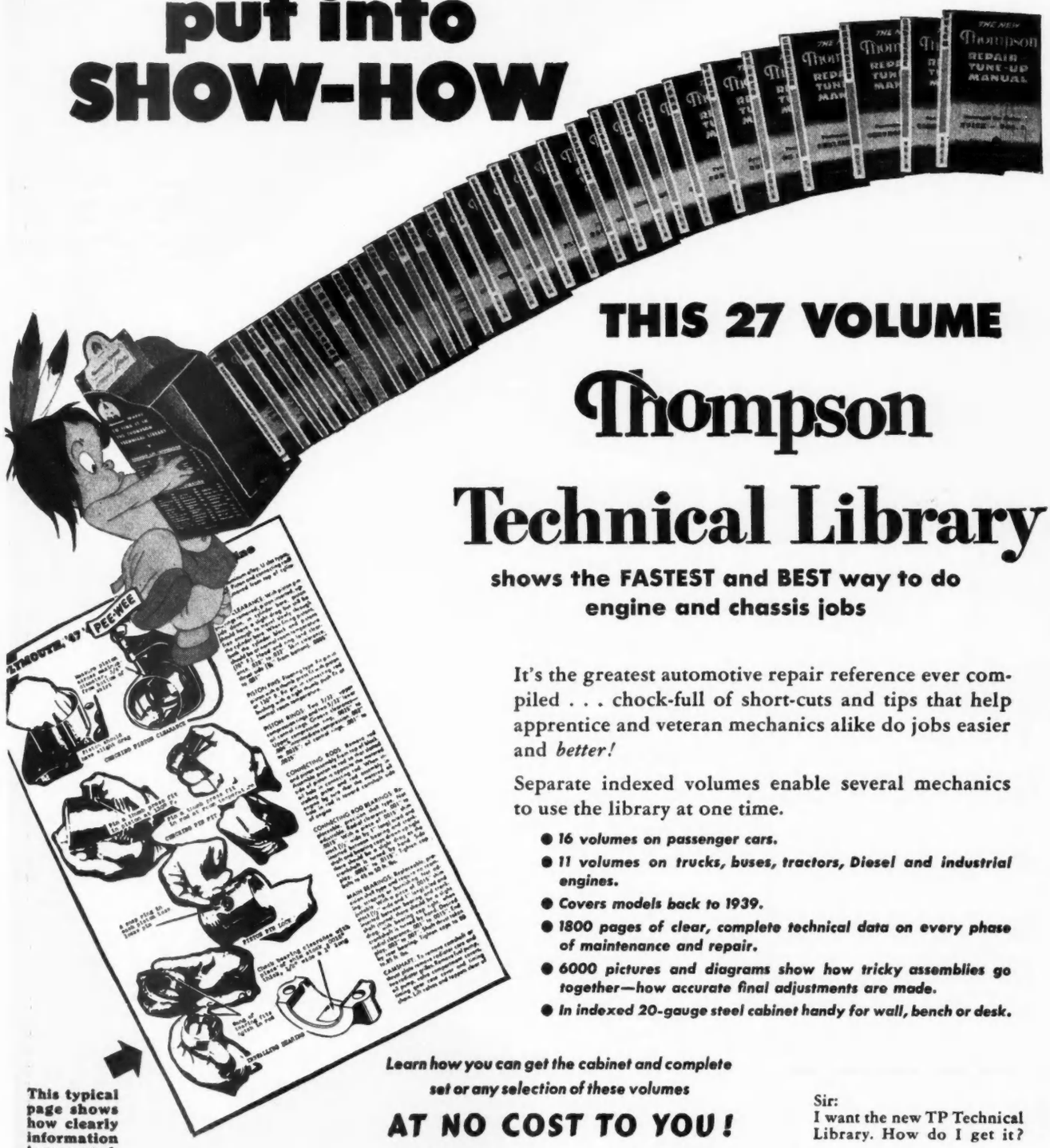
## P53. Spot Welder

A new lightweight portable and self-operating spot-welder is now being made available by its manufacturer, Greyhound A. C. Arc Welder Corp., Brooklyn, N. Y.

Called Greyhound Portable Spot-Welder, it easily welds up to ⅛ in. combined thickness of metal. The self-operating unit is enclosed in a compact non-corrosive cast aluminum casing with an integral aluminum handle for easy carrying. The protruding copper arms are available in three

(TURN TO PAGE 230, PLEASE)

# KNOW-HOW put into SHOW-HOW




## THIS 27 VOLUME Thompson Technical Library

**shows the FASTEST and BEST way to do engine and chassis jobs**

It's the greatest automotive repair reference ever compiled . . . chock-full of short-cuts and tips that help apprentice and veteran mechanics alike do jobs easier and *better!*

Separate indexed volumes enable several mechanics to use the library at one time.

- ***16 volumes on passenger cars.***
- ***11 volumes on trucks, buses, tractors, Diesel and industrial engines.***
- ***Covers models back to 1939.***
- ***1800 pages of clear, complete technical data on every phase of maintenance and repair.***
- ***6000 pictures and diagrams show how tricky assemblies go together—how accurate final adjustments are made.***
- ***In indexed 20-gauge steel cabinet handy for wall, bench or desk.***

**This typical page shows how clearly information is presented.**

***Learn how you can get the cabinet and complete set or any selection of these volumes***

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*See Your Distributor of* **Thompson Products**

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## New Products

(CONTINUED FROM PAGE 228)

lengths—6, 12 and 18 in.—and replaceable special alloy tips are available in an assortment of shapes for specific needs. Each unit has a silicon steel and copper transformer wound with burn-out-proof spun-glass insulated magnet wire, said to be an assurance of safe high heat conductivity. Available in either 220 or 110 volt units, each portable spot-welder is supplied with 10 ft. of cable.

***Use Free Postcard for More Details.***

### P54. Auto Finish

Two Sherwin-Williams' automotive finishes which were off the market during the war are once more available. The two items are Quick-Set Black Synthetic Enamel and Opex One-Shot Black Lacquer.

The enamel is particularly suited for shops that handle a considerable volume of re-finishing work. It dries out of dust in 30 min. and dries tack free and print free in four to five hours.

The lacquer comes from the can ready-to-spray. It has a maximum degree of actual film forming material at the gun and one coat covers solid.

***Use Free Postcard for More Details.***

### P55. Marker Lamp

The new Griffin Model No. 114 clearance and marker lamp fits inside the rub-rail. Only 1⅜ in. in depth, it is placed right above the truck rub-rail with flat surface mounting and is amply protected from blows and sideswipes.

The body of this lamp is of non-ferrous metal, cast in one piece. Consequently, foreign elements cannot enter, bulb replacement is simple, and juggling of parts is eliminated. The lamp will take either a 6 or 12-volt bulb. The lens (3¼ in. diameter) is available in amber, green, crystal or red, and the body has chromium plate or aluminum vehicle finish.

***Use Free Postcard for More Details.***

### P56. Graco Cleaner

Gray Co., Inc., of Minneapolis, manufacturers of lubricating and maintenance

equipment, announces the completion of a new, parts and tool washer for use in service stations and garages.

(TURN TO PAGE 232, PLEASE)

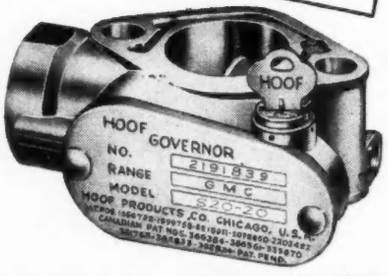
# HOOF GOVERNORS

## STEP No. 1 IN PREVENTIVE MAINTENANCE

Nothing saves major repair and parts replacement like day-to-day care. Thousands of fleet operators have learned by experience that the first step in preventive maintenance is speed control with HOOF GOVERNORS. Road speed must be held down in order to get maximum life and trouble-free service from an engine . . . but equally important is the control of speed in the lower gears. HOOF GOVERNORS offer the protection your vehicles need from the wear and tear of acceleration at high RPM in the low gears.

*Send for catalog* **HG-147** *. . Learn how ten definite savings are packaged with each HOOF GOVERNOR.*

KEY AND SEAL TYPE GOVERNORS AVAILABLE FOR IMMEDIATE DELIVERY

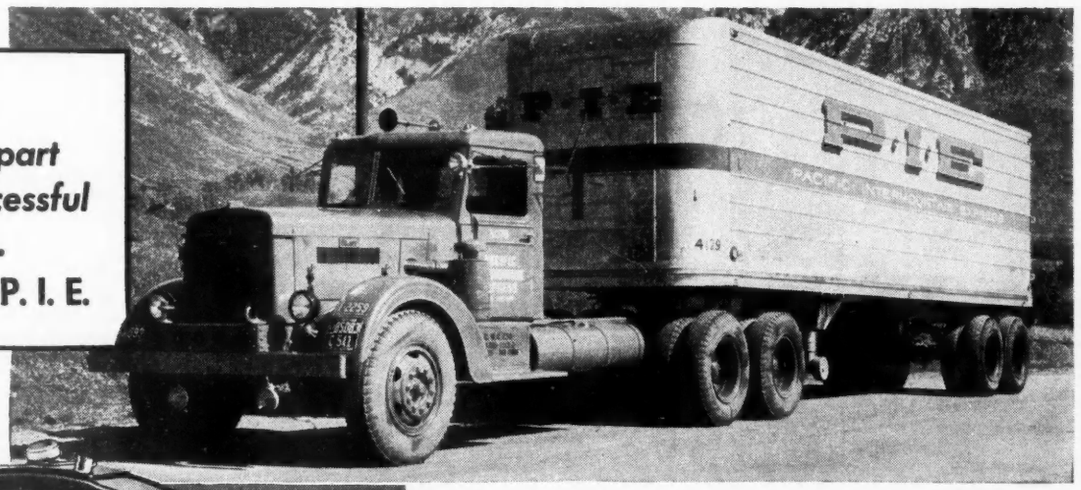



**HOOF PRODUCTS CO., 6543 S. Laramie Ave., Chicago 38, Illinois**

# TACHOGRAPH

## THE TIME-TESTED RECORDING SPEEDOMETER

*"played an important part in our successful growth"... Says P. I. E.*



Every power unit in "over-the-road" service of this western trucking company is equipped with a Tachograph. Most runs of this company are from 500 to 800 miles long. Driver divisions, set up on a relay system, average about 240 miles throughout the system. This type of operation requires efficient methods of checking on the movement of truck equipment and this company has found Tachographs to be the most reliable method of determining the action of each vehicle.

Like the Pacific Intermountain Express, hundreds of fleet operators have found that through the use of Tachographs their payloads really pay, and efficiency, safety and economy result—every movement of the vehicle is recorded permanently on the Tachograph Chart. This chart records:

- **WHEN ENGINE STARTED**
- **HOW FAST IT TRAVELED**
- **HOW LONG ENGINE IDLED**
- **WHEN VEHICLE STOPPED**
- **WHEN VEHICLE STARTED TO MOVE**
- **DISTANCE TRAVELED BETWEEN STOPS**

This recording speedometer has proved its value in actual use on thousands of commercial vehicles. Manufactured by Sangamo Electric Company it is fully guaranteed.

Every fleet owner and truck operator should have a copy of Tachograph Bulletin SU-3A. Coupon below is for your convenience. Mail it today for your free copy.

DISTRIBUTED BY

**Wagner**

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**Wagner Electric Corporation**

**6476 PLYMOUTH AVE., ST. LOUIS 14, MO.**

***Please send a copy of Bulletin SU-3A.***

Name and Position_____

Company_____

Address_____

City_____ State_____

We operate_____ (NUMBER) Vehicles

548-2

NO ONE ACCESSORY Does More
● To Improve Engine Performance
● Reduce Wear, Maintenance and Repair
● Lengthen Engine Life
THAN A GOOD OIL FILTER

A *good* oil filter quickly pays for itself many times over.

Besides increasing engine life and reducing wear, thoroughly filtered, cleaned oil provides the kind of lubrication that insures full-power engine performance. Furthermore, oil costs are cut and repairs or replacements reduced.

From actual comparisons of tests and long range performance records—fleet operators, engine builders and users select and use MICHIANA Filters.

MICHIANA Filters are economical too—they are efficient for long mileage and are easily made good as new by replacing the element or filter material.

You make money regularly on the MICHIANA Filters you install. Write for Bulletin 839 to MICHIANA PRODUCTS CORPORATION, Michigan City, Indiana.

**MICHIANA OIL FILTERS**

*Request your copy of latest illustrated Bulletin 839 today.*

# New Products

(CONTINUED FROM PAGE 230)

The Graco Utility Cleaners is a white-enameled cabinet, 36 in. high, 19 in. wide, and 19 in. deep. Any good commercial solvent is an effective cleaning agent in the solvent container.

Brake shoes, carburetor parts, crankcase ventilator screens, air filters and other automotive parts are cleaned quickly in the solvent bath. Operation of the treadle at the base of the cleaner produces a violent cross-current of solvent in the container. Parts and tools can also be soaked if necessary.

***Use Free Postcard for More Details.***

## P57. Sander Accessories

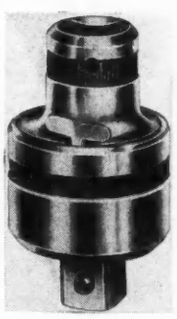
For greater ease of operation and convenience, the Sterling Portable Electric Sander is now available with important new features and accessories.

New side housing fenders, now standard equipment and a basic part of all Sterling Sanders, prevents scuffing when sanding in close quarters and gives added protection to the transmission. Another new accessory is an air scoop that gives protection in extremely wet or dusty sanding operations.

An auxiliary handle or knob which easily attaches to the top of the housing on the sander gives added support when an operator is sanding vertical or overhead surfaces for long periods of time.

***Use Free Postcard for More Details.***

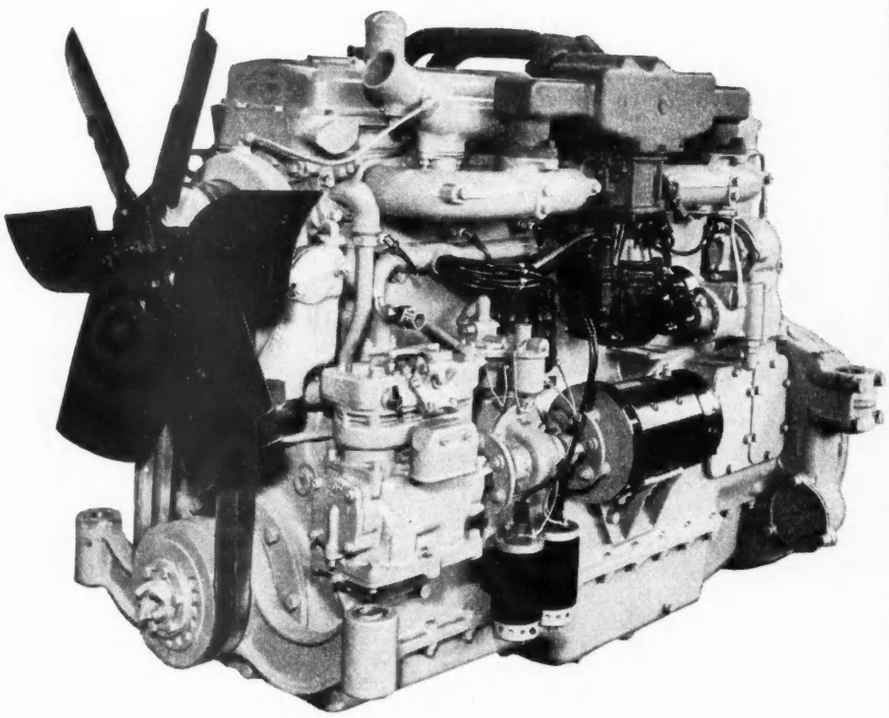
## P58. Socket Wrench



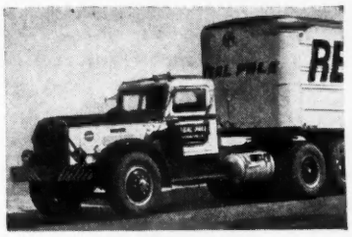
Any ½ in. drive socket wrench handle or attachment can be converted into a ratcheting device with a new tool, known as the Ratchetor, announced by the Plomb Tool Co., Los Angeles, Calif. The tool, designated as No. 5447, has a ½ in. square plug with ball-check for holding a socket wrench, a ½ in. square opening for insertion of a

(TURN TO PAGE 234, PLEASE)

# FOR ON-THE-JOB PERFORMANCE use the HALL-SCOTT "400"

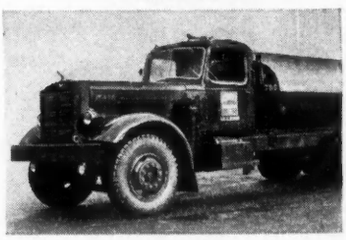


1. High Torque—Low R.P.M.
2. Long Life
3. Minimum Maintenance
4. Gasoline or Butane Equipment
5. Clean Operation



AUTOCAR

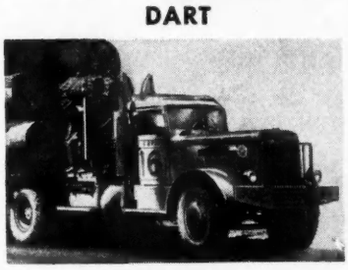
KENWORTH



MACK

INTERNATIONAL

DART



PETERBILT

# HALL-SCOTT

**MOTOR DIVISION**

**ACF-BRILL MOTORS COMPANY**

Factory and Main Office: Berkeley 2, California
New York Branch: 254 W. 31st Street

HALL POWER BY SCOTT

*Branches:*
Boston, Philadelphia, Chicago, Dallas, Los Angeles, Seattle, Berkeley



*Use postage-paid card inserted at page 137 for free information on advertised products*

## New Products

(CONTINUED FROM PAGE 232)

handle or attachment, and a reversible ratcheting mechanism.

The Ratchetor is intended mainly for use with a hinge handle, a hinge handle plus extension, a speed handle or a torque wrench, but it can be used with other non-ratcheting handles.

The 34 ratchet teeth provide positive engagement every 10½ deg. The reversing lever acts directly on a pawl, eliminating a separate cam mechanism and the possibility of misalignment and malfunction. This lever is easy to operate, and it is well protected from damage or unintentional reversal.

***Use Free Postcard for More Details.***

### P60. Concrete Protection

A new heavy-duty, long-wearing synthetic paint that protects concrete surfaces with an abrasion-resisting coating that does not crack, check or "dust" has been introduced by Lowebco, Inc., Chicago.

The new paint dries to a hard, durable, glossy finish in three to four hours. It seals concrete surfaces from moisture above or below. It expands and contracts easily with the surface covered and resists acids, alkalis and extreme degrees of heat or cold, the company states.

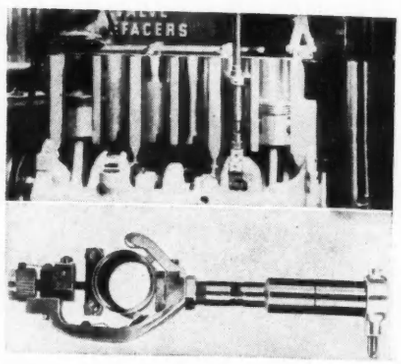
Besides forming a protective covering on concrete, the new synthetic paint can also be applied to exposed metals, machinery, boilers and pipes and to porous masonry surfaces.

***Use Free Postcard for More Details.***

### P61. Crankshaft Grinder

Waterbury Tool Division of Vickers, Inc., Waterbury, Conn., announces the marketing of a new type crankshaft grinder that works in the block from the top in most "in-line" internal combustion engines.

The portable crankshaft grinder consists of two major assemblies—the grinding unit and the crankshaft revolving unit. The grinding unit assembly consists of a ¾ hp, rated 10,000 rpm, electric motor and bracket for top of block mounting, plus a flexible drive shaft for transmitting motor rotation to the grinding wheel.




The crankshaft revolving unit is made up of a motor, reduction gear and belt drive. Direct drive to crankshaft through the fan belt pulley eliminates the need for rear wheel drive. A simple vise and diamond tool is furnished for truing-up the grinding wheel. It is designed to mount to the motor block conveniently located to the job. Standard motor block bolts are used for fastening.

***Use Free Postcard for More Details.***

(TURN TO PAGE 238, PLEASE)


BOLSER
Safety Equipment

**CARRY YOUR WARNING FLAGS IN A CLOTH BAG**

**Prevents Rotting or Mildew**

The Genuine Bolser Carrying Bag is far more satisfactory than metal containers — as flags can dry out when carried in a cloth bag. Genuine Bolser Flag Kits consist of flags made of heavy RED Fast Color BUNTING—18" x 18" size mounted on ⅝" BIRCH WOOD Staff lacquered Red. Metal Cap, Joint and Spear Point Cadmium Plated. Carrying Bag is durable drill with pull cord. All flag staffs come standard equipment with metal spear point as illustrated. But metal holder which fits around flare burner on flag staff is available if desired.

**Super Construction. Staffs are Birch Wood! Lacquered! Metal Parts—Cadmium Plated. Material of Heavy Bunting—Fast Color.**

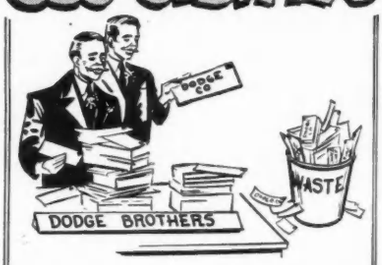
*Preferred by discriminating buyers!*

Available in:
No. 83—Genuine BOLSER Three-Flag Kit
No 82—Two Flags in Bag
No 81—Single Flag Only
No. 80—Bag Only

**Hi-Way Warning FLAGS . . . Ful-Vue Truck MIRRORS . . . Truck REFLECTORS . . . Truck Marker and Clearance LIGHTS . . . Truck FLARES . . . DIRECTION SIGNALS . . . FUSEES**

THE BOLSER CORP. Cedar Falls, Ia.

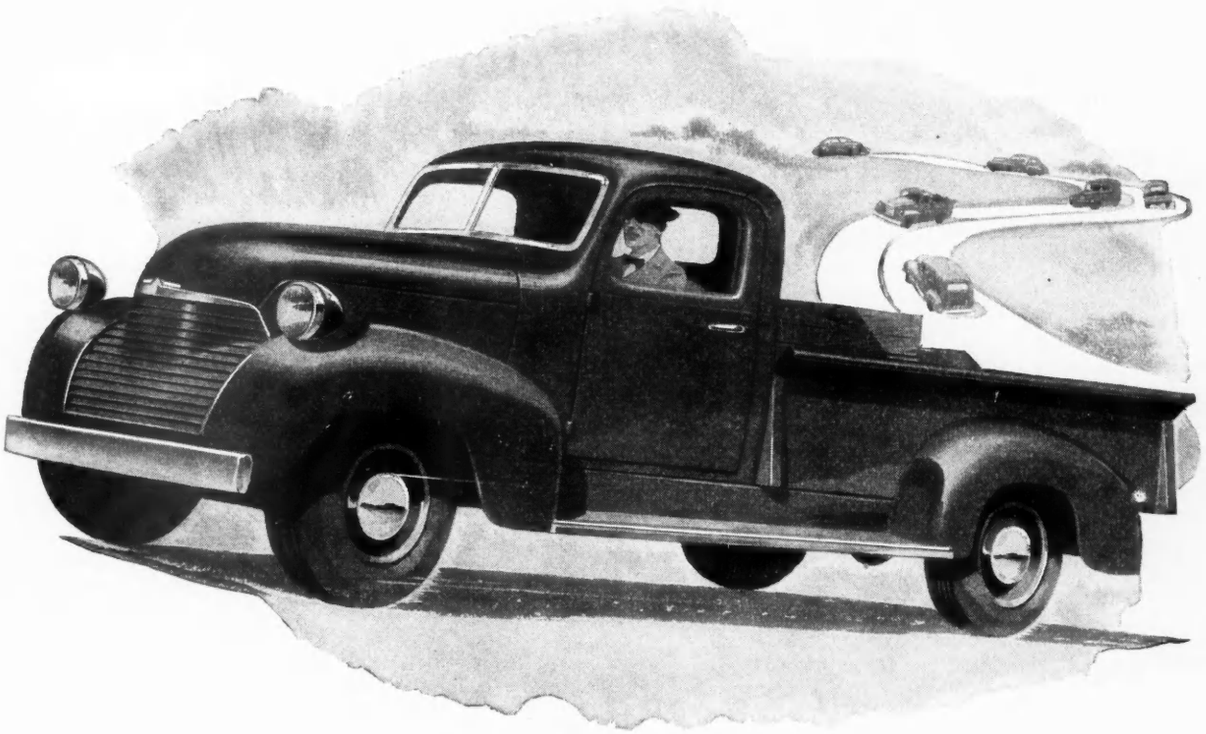

## CCJ ODDITIES




THERE WAS A TIME WHEN HORACE AND JOHN DODGE REFUSED TO ACKNOWLEDGE CORRESPONDENCE ADDRESSED TO THE DODGE FACTORY OR THE LIKE. EVEN ORDERS WERE DISCARDED UNLESS ADDRESSED TO DODGE BROTHERS.

# RAYBESTOS BRAKE LINING SETS

# *Built For* ★ *Service Industries*



**Raybestos**

**AMERICA'S BIGGEST SELLING BRAKE LINING**

**RAYBESTOS-MANHATTAN, INC.**

★ **SERVICE INDUSTRIES:** Truck fleets of bakeries, florists, fuel dealers, contractors, dairies, department stores, utilities, laundries, cleaners, grocers. local manufacturers, etc.

## New Products

(CONTINUED FROM PAGE 234)

### P62. Hand Scraper-Planer

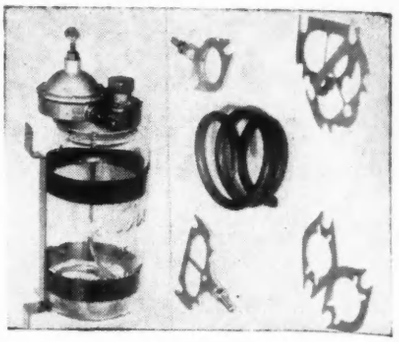
Swiss Laboratory, Cleveland, Ohio, has developed a new, sturdy, non-clogging hand-tool scraper, which planes and smooths in one operation, on wood or metal surfaces, and solder. Free-moving, replaceable blades are of hardened tool steel that retains sharpness of cutting edges and eliminates frequent sharpening of blades. The blades are attached by a metal rod to a hard rubber block and move forwards-backwards with the hand activated rubber block. The hard rubber block fits the hand and gives cushion for a better scraping job. Size 5 in. long by 2 in. wide by 1½ in. deep.

***Use Free Postcard for More Details.***

### P63. Water Injector

Hydro-Power Injector, manufactured by Hydro-Power Mfg. Co., Denver, Colo., incorporates the principle of water injection via intake manifold to increase speed, power and efficiency in automobile, truck, tractor and diesel engines.

The company makes the following claims for the unit: Injecting water vapors increases fuel rating. Engine operates at a more efficient point with greater economy, power and increased acceleration. Engine failures resulting from knock or pre-ignition are reduced. Hydro-Power Injector frees the engine of dangerous combustion chamber deposits. Lower rate of power rise during combustion increases engine power. Elimination of carbon in engine lowers sludge formation in crankcase preserving pistons, piston rings, valves, bearings and extends life of spark-plugs. Valve failure, valve seat warpage and burned out spark-plugs are reduced.



***Use Free Postcard for More Details.***

### P64. Tally Board

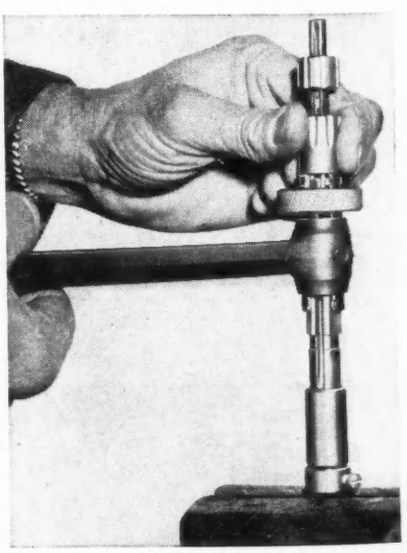
An electrically illuminated tally board called the "Tally-Lite," which throws a clear light on tally sheets for speeding checking and entering where there is little or no light, has just been developed by Clyne Mfg. Co., Cincinnati, Ohio. It eliminates the need of flashlights and the fire hazards from lanterns or matches.

The board has a heavy filament, three-volt bulb, and uses 3 standard flashlight cells. The entire unit with batteries weighs only 24 ounces.

***Use Free Postcard for More Details.***

### P65. Expansion Reamer

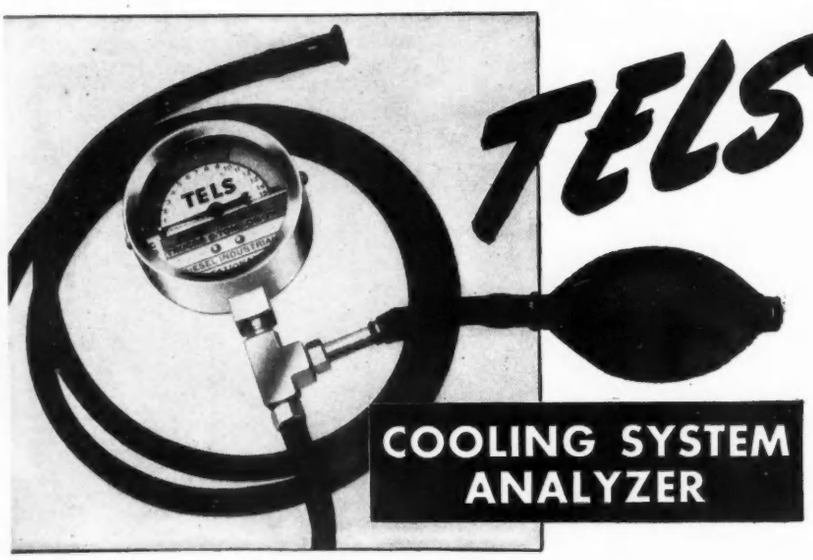
A new model of the U. S. single blade expansion reamer which can ream exact-



diameter holes to fit almost any size of soft metal bearings including piston pins, has been announced by the U. S. Reamer & Tool Corp., Glendale, Calif.

The reamer is now provided with two

(TURN TO PAGE 240, PLEASE)


**23,000,000 Miles**

**without a cracked block or faulty valve operation caused by overheating**

That is the record of one famous Pennsylvania fleet after three years of routine servicing with TELS.

TELS is the scientific test instrument that accurately locates internal and external leaks and other cooling system troubles. TELS duplicates normal operating pressures at which troubles occur — then quickly reveals those troubles. Easy-to-follow chart supplied with each instrument.

Keep your fleet on the road. Save maintenance cost and time. Avoid costly cooling-system repairs. Order your TELS from your jobber today.

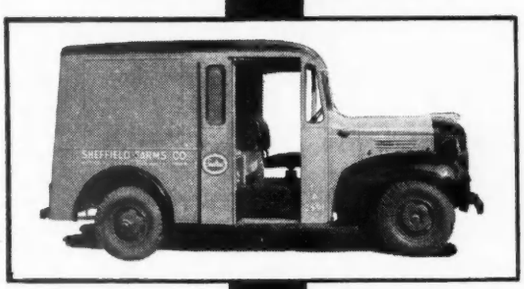
Only $12.50 Complete from your Jobber

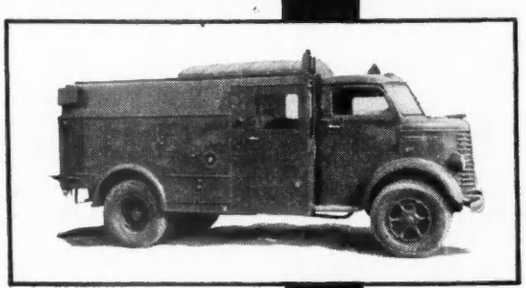
TELS Tells at a Glance . . .

. . . if the system leaks, if the water passages are plugged, if the thermostats are clogged, if there is faulty fan operation, if the radiator or cap are defective, TELS tells — instantly and accurately.

JAMES INDUSTRIES, INC.
SKANEATELES, N. Y.

# It takes DEPENDABLE SERVICE to keep customers . . .

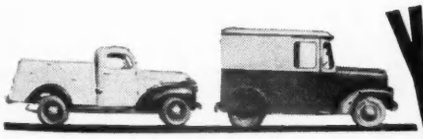




## that's why YORK-HOOVER BODIES are re-ordered again and again

Low "per package" delivery cost service—dependable service — low maintenance service — that's what fleet operators are getting from YORK-HOOVER BODIES. And so the number of York-Hoover repeat customers is constantly growing.

To meet this healthy, steadily growing demand, York-Hoover has increased plant and production facilities so that we hope to say "prompt deliveries" in the not too distant future.



YORK, PENNSYLVANIA

# YORK-HOOVER BODY DIVISION CORPORATION

## New Products

(CONTINUED FROM PAGE 238)

important additional features. Each size is supplied with standard and oversize ring gages. After selecting the desired size of ring gage, it is slipped over the reamer. The reamer is used in the usual way but when the bearing has been reamed to proper size, the ring gage prevents further expansion.

In addition to the Tru-Size ring gages, U. S. reamers are now equipped with a tungsten-carbide blade which produces an accurate ream-finish.

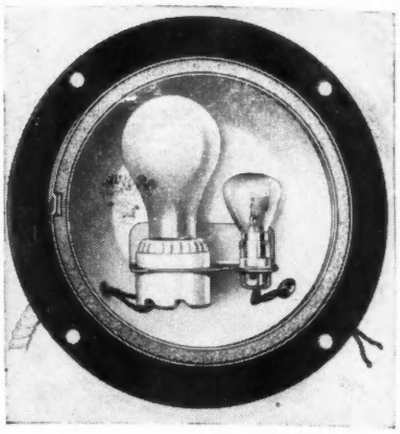
***Use Free Postcard for More Details.***

### P66. Dome Light

A giant dual dome light is now available from Do-Ray Lamp Co., Chicago.

The unit is used in trailers when not connected to tractor. The light can be used on loading docks, in yards, in field machine shops or in other isolated places wherever 110 volt line is available. Saves space at the loading docks by pulling trailer away from dock and sorting load in other parts of yard. With a weather and corrosion resistant bakelite plug and socket, the unit is equipped with 6 or 12 volt bulb to accommodate either 6 or 12 volt tractor, and 110 volt bulb for use when tractor is disconnected.

***Use Free Postcard for More Details.***




# Are You Interested in Saving Motor Fuel?

***I increased gas mileage 15% on a K7 International hauling 28,000# on a 150 mile turn-around run...**

**with**

**THROT-O-MATIC**

***I increased gas mileage 20% on a K7 International hauling 6000# on a turn-around of 170 miles. And in addition Throt-O-Matic has reduced driver fatigue!**

Let us send you copies of these actual reports* on tests under operating conditions. They show substantial earnings and better working conditions for the drivers. They **prove that it pays** to reduce driving fatigue.

Throt-O-Matic is an electrical throttle holding device with two automatic releases. It is easily installed on any automotive vehicle and is furnished in both six and twelve volt models. **WRITE TODAY** for details of this new money-saving device.

**The MACO Corporation, Huntington, Indiana**

When you drive with

**THROT-O-MATIC**

*You don't get so tired* and you save **MOTOR FUEL**


### P67. Wet Cutting System

The new Gray-Mills No. 8 wet cutting conversion unit is designed for converting dry reamers and bushing grinders to wet cutting units. The No. 8, which is sold as a package unit, is completely self contained and operates independently of the grinder motor. An electric motor driven pump (centrifugal type) delivers oil through a flexible, easily directed nozzle equipped with a flow control valve. The baffle-equipped reservoir holds approx. 3½ gal. of oil which is screened before recirculated.

***Use Free Postcard for More Details.***

### P68. New Butyl Tube

The Pharis Tire & Rubber Co., Newark, Ohio, has announced a new butyl inner tube incorporating new features. A series of radial ribs in four locations of the surface of the tube perform a two-fold function. They hold the tube firmly in place and dissipate heat generated by road friction and the constant compression and expansion of the revolving tire.

Correct inflation of the new tube which is easier to maintain, gives new riding comfort, greater safety, easier steering and relief from worry about soft tires, the company states.

***Use Free Postcard for More Details.***

### P70. Bending Bar

Adjustable arms distinguish a patented bending bar, introduced by the Plomb Tool Co., Los Angeles, Cal. This new tool, designated No. 2135, eliminates the need for the usual assortment of solid bending bars, and it handles many jobs that would otherwise

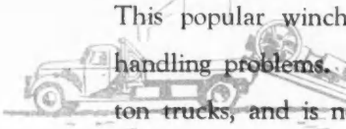
(TURN TO PAGE 242, PLEASE)

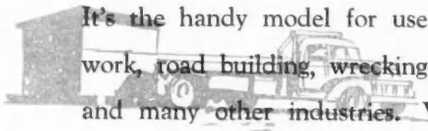
"I hope you're not just tinkering"

# FOR *Any* HANDLING JOB UP TO 12,000 LBS....

## SPECIFY BRADEN MODEL M6-15B

This popular winch is the perfect solution to a variety of handling problems. It's not too large to mount on small one ton trucks, and is not too small to handle fairly heavy loads with safety. Make the M6-15B your general utility winch. It's the handy model for use in construction, electric utility work, road building, wrecking services, logging, the oil fields, and many other industries. Write for complete information on the Braden Model M6-15B.





WRITE FOR NEW BRADEN CATALOG FOR COMPLETE INFORMATION ON OTHER MODELS . . . SPECIFY LIGHT OR HEAVY DUTY . . .

**BUY BRADEN—THEY ARE SAFER**

**BRADEN WINCH COMPANY** — 1001 East Admiral Boulevard

**BRADEN** *Winches* — IN SERVICE AROUND THE WORLD

**TULSA 3,** Oklahoma

## New Products

(CONTINUED FROM PAGE 240)

require a sledge hammer, pry bar, vise or press.

The two adjustable arms can be placed close together or far apart, and they can be positioned on the hexagon post so the handle will project at the desired angle. More than 100 different positions of the arms are possible for bending, straightening, aligning, spreading and forming various parts and materials. Ample leverage may be obtained with the 36 in. handle.

***Use Free Postcard for More Details.***

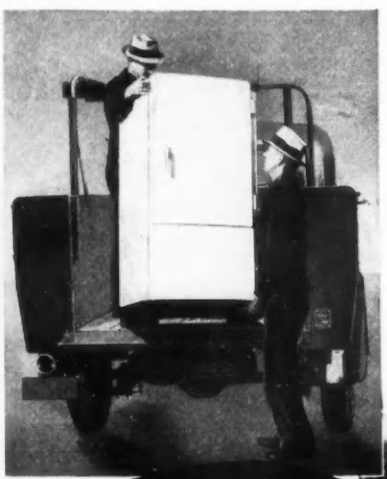
### P71. Battery Charger

A new line of small, light, portable battery chargers is being introduced by Richardson-Allen Corp. of New York. Each unit features a meter which can be read while the battery *is being charged.* Circuit breakers prevent blown fuses resulting from crossed wires. Models are available rated from 6 amps. to 80 amps. for average to fast charging. The chargers offer full wave selenium rectification and the lighter weight of selenium plates makes them easily portable. The units plug in to normal 110 volts, 50 to 70 cycle AC current and are extremely economical on current usage.

***Use Free Postcard for More Details.***

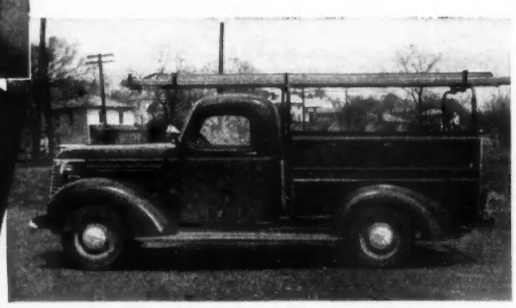
# *At Last!* A LOW PRICED LIGHT-DUTY DELIVERY *and* SERVICE BODY!

**➔ *Saves Man Hours Because It Speeds Up Handling and Delivering!***



ALL-STEEL welded construction - Roomy body for delivering large appliances - Weather-tight compartments on each side for tools, repair parts, replacement parts, etc. - Overhead ladder racks and other optional accessories available. - Designed for mounting on ½ ton, ¾ to 1-ton chassis.

★ EFFICIENT
★ ECONOMICAL
★ LOW PRICED



*Write* for descriptive bulletin *today!*

Parsons CREATIVE ENGINEERS MANUFACTURERS ENGINEERING CORP.
2545 EAST 79th ST. CLEVELAND 4, OHIO


### P72. Ronaflex Tubing

Dependability and life have been extended with a new product of the Ronaflex Tubing Co., Inc., Philadelphia, Pa. These improvements are the result of new buna and neoprene base synthetics which stand up under the terrific punishment of high temperatures, pressures, vibration, internal and external corrosive solvents and fumes. Not only is useful life increased many times, but leakage and maintenance troubles are said to be eliminated.

***Use Free Postcard for More Details.***

### P73. Look-Out Lite

The Look-Out Lite just introduced by Perry Products, Inc., Kenilworth, N. J. brings something new in the way of a warning and utility light.

A flashing feature warns approaching cars when the user's vehicle has been forced to stop.

The plastic top is of red polystyrene with a white band sufficiently wide to provide clear light for repairing tires, map reading and locating engine trouble or lost articles around the car and in the glove compartment.

When used as a warning signal, the light flashes 80 times per minute, but the flick of the three-way switch provides a steady light for all of the utility features or completely shuts off the light.

The design of the new permanent Alnico magnetic base provides adherence to the ferrous metal parts of the vehicle with the light in any position.

***Use Free Postcard for More Details.***

***END***

***(Please resume your reading on P. 152)***

**"Remind me to tell you about load distribution sometime"**

## "QUICK," THE MAINTENANCE BOSS SHOUTED:

# "TELL ME ABOUT THIS ARMOR-KLAD LAMP!"

"Sorry," he snapped, "can't see you today. Too busy. S'long."

"OK," I said, "mind if I leave this new 67 Hy-Power Armor-Klad Lamp with you?"

He picked it up — that was my break. "Quick," he shouted, "tell me about it!"

"Glad to," I said. "It's a real heavy duty job — casting alone weighs about as much as average armored lamps completely assembled."

"It has the special 2-way Hy-Power lens," he observed.

"Sure, and the Armor-Klad protects the lens against breakage," I replied, "and a special outside housing guards the socket, too!"

"What about bulb replacements?"

"Merely remove retainer ring," I answered, "there are no rusted screws or clips to bother with and the cast frame need never be removed!"

"Nice finish," he said. "Will it stand up?"

"You bet," I assured him. "It's heavy cadmium plate with a special lustrous, high gloss that will last the life of the truck. Let me tell you about —"

"No, I'm really too busy," he grinned, "but I'm not too busy to give you an order for these Hy-Power Armor-Klad Lamps!"

KING BEE
AMERICAN AUTOMATIC DEVICES COMPANY • CHICAGO

**AMERICAN AUTOMATIC DEVICES CO. 502 S. THROOP ST., CHICAGO 7, ILLINOIS. • MFRS. OF PROTECTO RUBBER RIM MIRRORS • HY-POWER LAMPS • FOTO-RAY REFLECTORS**

## CCJ Newscast

(CONTINUED FROM PAGE 152)

research by its consultants gave no clue to the destructive element.

All extinguishers recalled are of the vaporizing liquid pump type. They are quart and 1½ quart sizes with the exception of a small number of pint size.

Owners should examine their extinguishers closely and check with suppliers to determine whether they are in the affected groups. If defective they should be returned to the place of purchase or to the Pyrene Mfg. Co., Department RX, No. 10 Empire Street, Newark 5, N. J.

### 1948 Domestic Truck Factory Sales by Gross Vehicle Weight*

| | 5,000 & Less | 5,001-10,000 | 10,001-14,000 | 14,001-16,000 | 16,001-19,500 | 19,501-26,000 | Over 26,000 | Total |
|---|---|---|---|---|---|---|---|---|
| January | 28,690 | 15,458 | 11,641 | 17,700 | 5,600 | 3,166 | 1,638 | 83,893 |
| February | 32,776 | 15,623 | 12,308 | 16,733 | 5,983 | 3,666 | 1,800 | 88,889 |
| 2 Months | 61,466 | 31,081 | 23,949 | 34,418 | 11,598 | 6,832 | 3,438 | 172,782 |

* Automobile Manufacturers Association.

### ICC POWERS CHALLENGED

The National Industrial Traffic League, an important shipper's organization, has filed a petition with the ICC challenging that body's power to regulate the leasing and interchange of motor freight vehicles. The petition also charged that organized for-hire carriers have attempted to use the current ICC leasing investigation as a stepping stone to hamstring private transportation.

### 1948 Truck Trailer Production*

| Vans | January |
|---|---|
| Insulated and refrigerated | 151 |
| Furniture | 29 |
| All other closed top | 1,226 |
| Open top | 164 |
| Total Vans | 1,570 |
| Platforms: | |
| With cattle and stake racks | 170 |
| With grain bodies | 61 |
| All other | 411 |
| Total Platform | 642 |
| Tanks: | |
| Petroleum | 329 |
| All other | 56 |
| Total Tanks | 385 |
| Pole and Logging: | |
| Single axle | 206 |
| Tandem axle | 92 |
| Total | 298 |
| Low-bed heavy haulers | 133 |
| Off-highway | 37 |
| Dump trailers | 24 |
| All other trailers | 252 |
| Total Trailers | 3,341 |
| Chassis for trailers | 141 |
| Total Trailers and Chassis | 3,482 |

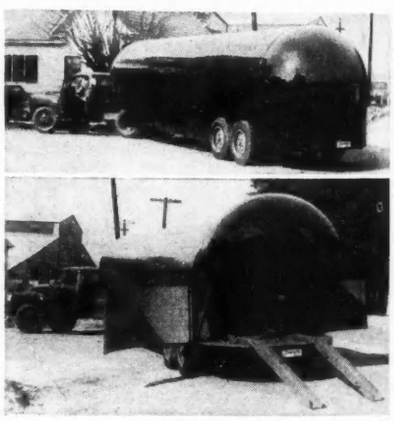
* Data from Industry Division Bureau of the Census.

### HOFFMAN LEAVES SAFETY FOUNDATION

Paul G. Hoffman, president of Studebaker Corp. and newly appointed director of the European Recovery Program has resigned as chairman and treasurer of the Automotive Safety Foundation. He is succeeded as chairman by Alexander Fraser, president of Shell Union Oil Corp., and as treasurer by A. O. Dietz, president of Commercial Investment Trust, Inc.

(TURN TO PAGE 246, PLEASE)

### Streamlined Van



**A combination transport and display van recently designed and built by Dorsey Trailers, Inc., for Empire Neon Sign Co., Savannah, Ga., will transport three small automobiles of the Crosley type and in addition, there is ample room for the storage of products to be displayed or sold. With some modifications this design has been used as a horse transport van, having ample room for nine horses on the lower deck and a large tack room or living quarters on the upper deck. Since the wheelhouse clearance is 70 in. and the floor height only 24 in. above the ground, another modification makes an ideal furniture van, with low center of gravity and no danger from overpasses due to low overall height.**

KEEP 'EM CLEAN with HYPRESSURE Jenny STEAM CLEANER

A FULL-POWERED, ALL-PURPOSE, EXTRA HEAVY-DUTY MODEL **NOW** FOR AS LITTLE AS

**$368.00**

Hypressure Jenny often repays its cost 4 or more times a year in time and money saved by cleaning equipment *before* repairs . . . removing road dirt that often adds as much as 400 pounds extra weight to a load . . . revealing cracks and defects for repair before costly road failures occur.

Hypressure Jenny cleans garage and shop floors, pits, grease racks, runways, walls, windows, etc. 8 to 10 times faster and better than you can clean them by hand.

Hypressure Jenny is compact, portable, safe and easy to use. Ordinary labor can operate it.

**MAIL TODAY!**
We'll make a FREE SURVEY of your cleaning requirements and estimate the savings you can effect with Hypressure Jenny Steam Cleaner. No obligation.

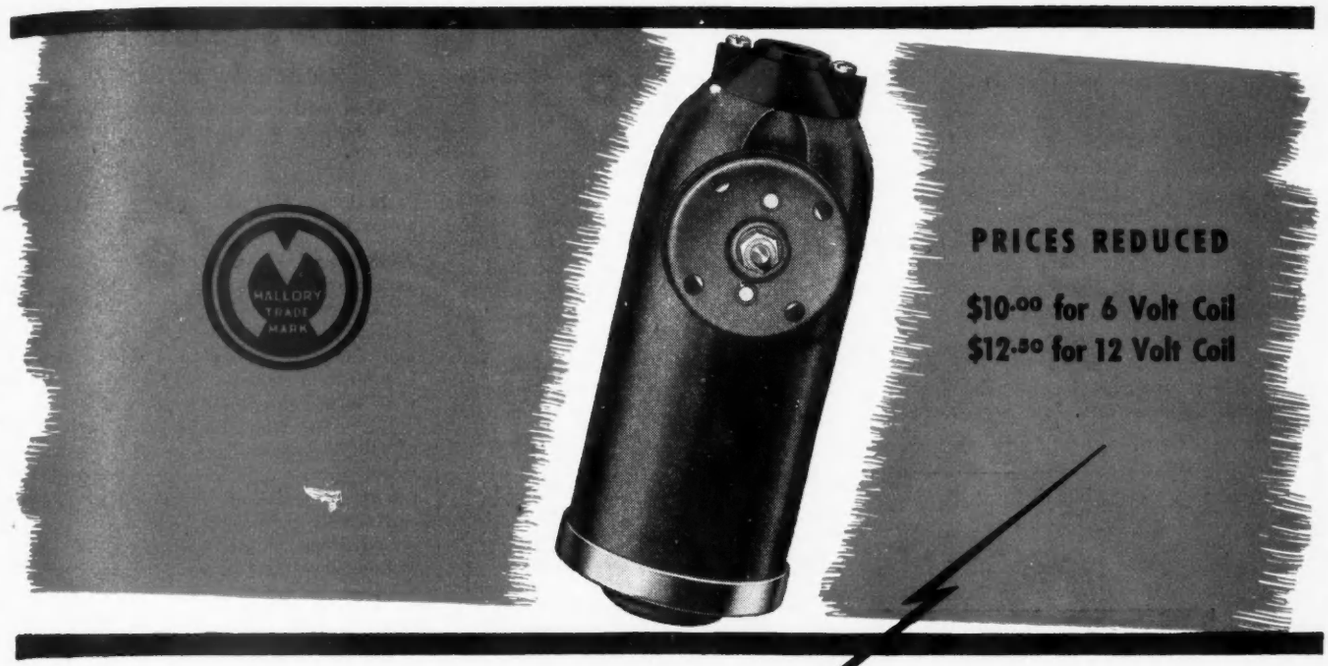
**HYPRESSURE JENNY DIVISION**
HOMESTEAD VALVE MANUFACTURING CO.
Serving Since 1892

REQUEST FOR SURVEY

Hypressure Jenny Division
Homestead Valve Manufacturing Co., P.O. Box 90-D, Coraopolis, Pa.

We employ ..... mechanics on repair work.
We overhaul or recondition . . . ☐ cars, ☐ trucks, ☐ buses each month.
We paint . . . ☐ cars, ☐ trucks, ☐ buses each month.
We're interested in cleaning ☐ floors, ☐ walls, ☐ windows, .....
We wash approximately . . . ☐ cars, ☐ trucks, ☐ buses each month.
Based on above facts, please show us the savings or extra profit HYPRESSURE JENNY can produce.

Company .....
By ..... Title .....
Address .....
City ..... State .....




**PRICES REDUCED**

**$10.00 for 6 Volt Coil**
**$12.50 for 12 Volt Coil**

# THE GENUINE *Mallory* MASTER COIL

**OVERCOMES NORMAL SPARK LOSS • IS COMPLETELY WATERPROOF • IS OIL SEALED AND AGE-PROOF**

The Mallory Master Coil—for either 6 volt or 12 volt systems—is something brand new in a waterproof, long-lived ignition coil.

Its water-proof design is a novel Mallory development. The coils are housed in bakelite and the windings are completely sealed in a special transformer oil to eliminate short circuits or breakdowns. The wire leading to the distributor is also sealed in to make this coil absolutely water-proof. To support this claim the Mallory Coil can be completely submerged in water with the engine continuing to run.

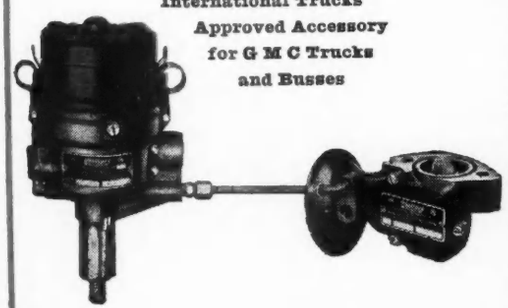
The Mallory Master Coils will deliver more energy than ordinary coils so that a hotter spark is produced; hence with a Mallory Master Coil, the engine will always start easily, even when the battery is low in cold weather. Extreme dependability and superior performance are further assured because of the water-proof housing of the Mallory Master Coils.

Our reputation among fleet operators for building dependable and efficient coils, condensers, and distributors, is enviable and has been gained through years of satisfactory service.

DISTRIBUTION OF MALLORY PRODUCTS for Sales and Service May Be Open in Your Territory. Write us for full details.

**THE NEW MALLORY DISTRIBUTOR—GOVERNOR IS NOW STANDARD ON**

**American Aerocoach**
**Autocar  Federal Trucks**
**Optional Equipment on International Trucks**
**Approved Accessory for G M C Trucks and Busses**



**MALLORY ELECTRIC CORPORATION**

***Manufacturers of Automotive Electrical Devices***

**DETROIT 4, MICHIGAN**



*Use postage-paid card inserted at page 137 for free information on advertised products*

## CCJ Newscast

(CONTINUED FROM PAGE 244)

### INDUSTRIAL NOTES

Completion of a $350,000 expansion program at the Los Angeles Plant of the Willard Storage Battery Co. has been announced by C. H. Starr, executive vice president of the California company. The expanded plant, located at 5700 East Olympic Blvd., now has a capacity of 250,000 additional storage batteries a year.

Rapidly expanding production of Fruehauf all-steel truck bodies at Fruehauf Trailer Co.'s Kansas City plant is expected to reach a capacity of 1000 bodies a month as soon as steel shortages are overcome.

Shipped knocked down, in 12, 14 and 16 ft. lengths, the bodies are available in hundreds of combinations to fit almost every truck van body requirement.

Seiberling Rubber Co. has announced a new premium quality extra low pressure tire. The new tire has "heat vents" in the tire shoulder, which ventilate the tread area and dissipate excess flexing heat, and a new, improved tread design which is claimed to furnish the maximum possible non-skid traction.

General Motors produced 1,925,858 cars and trucks in the United States and Canada during 1947. Of the total vehicles produced, 1,498,270 were passenger cars and 427,588 were trucks.

In December, GM produced a total of 194,477 cars and trucks in the United States and Canada, the highest monthly production for the year and 20,443 more units than were turned out in November.

Willys-Overland Motors produced a total of 119,733 cars and trucks during the calendar year 1947, for the company's highest peacetime production record since 1929, and scored a monthly high for the same period when it produced 12,242 vehicles in December. The annual production figure compares with a total of 77,988 units built in 1946. The company has set 238,000 vehicles, or an increase of more than 99 per cent as its production goal for the calendar year 1948.

### LEGISLATIVE DEVELOPMENTS

New York—A bill requiring turn signals on all new cars after January 1, 1950 awaits the governor's signature, and a bill requiring that truck and bus drivers be allowed at least 24 consecutive hours of rest a week has been signed into law.

Kentucky's toll roll bill which would provide a link in the Chicago-to-Miami toll road net died in adjournment of the legislature, but the bill providing a State Police Dept. awaits only signature.

(TURN TO PAGE 248, PLEASE)

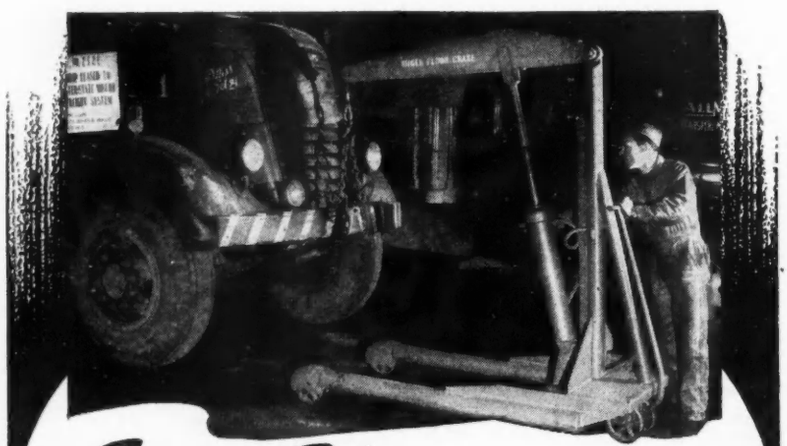
## DRIVE SLOWGANS

*by BUSTER ROTHMAN*

**Men still die with their boots on—but usually one boot is on the accelerator.**

★ ★ ★

**Making the old car do—doesn't mean 65.**

*Every Shop*

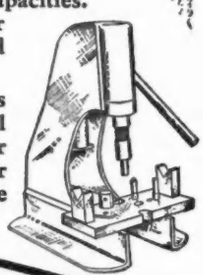
NEEDS ONE OR MORE **RUGER**

***HYDRAULIC*** **FLOOR CRANES**

Moves right up to the job... lifts, lowers, carries heavy loads ...reaches over obstructions and into tight quarters... works at any height from floor level up to 10′ 5″ high (extension boom attachment gives 42″ added reach.)

Built in six models having 1-ton, 2-ton and 3-ton capacities. Special attachment also available reaches under chassis for removing and replacing differentials and transmissions.

A 5-year engineering and development program is responsible for the outstanding performance of all Ruger Products, including Ruger Hydraulic Floor Cranes, Hydraulic Truck Cranes and Hydraulic Arbor Presses. Only genuine Ruger Products carry the Ruger name and the Ruger guarantee.



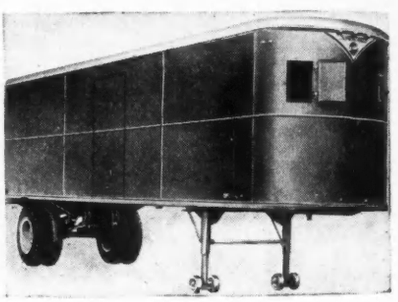
RUGER *Equipment Co., Inc.*

2425 St. Clair Ave. | Cleveland 14, Ohio

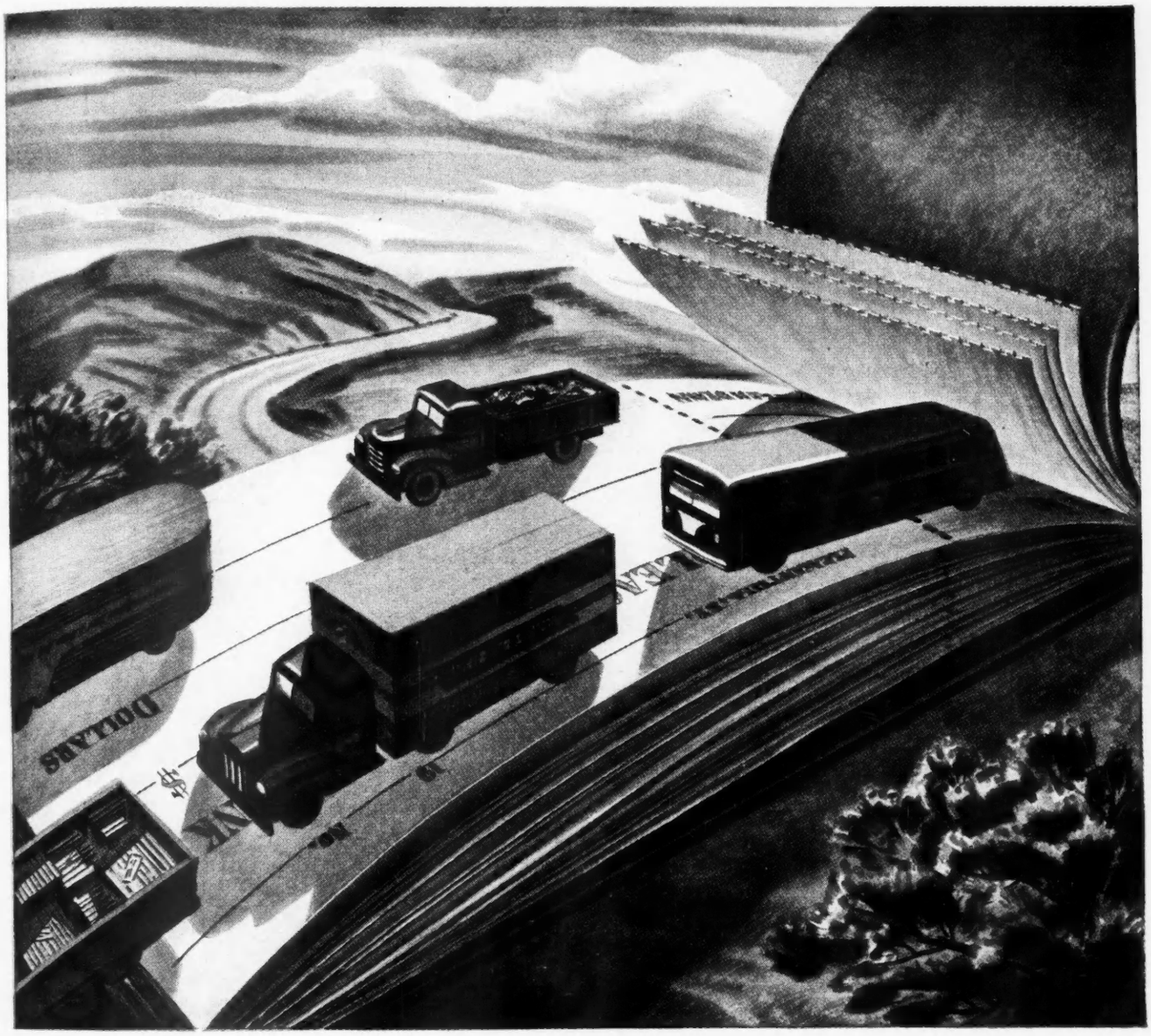
P. O. Box 3821 | Portland 8, Ore.

*Ask your jobber for information and prices on Ruger Products. If he is unable to supply you, write us direct.*


## Insulated Trailer



**A new type of semi-insulated trailer by the American Bantam Car Co., manufacturers of Supercargo Trailers is designed for transportation of perishable commodities, such as fruit and vegetables. Manufactured in all standard trailer sizes, the model is available with either steel or aluminum body exteriors. Special equipment such as cooling machinery, specified by purchasers also can be supplied. Most of the models have a special galvanized sub-floor, with reflective type insulation material, under the regular floor. Standard insulation is installed in sides, ends and roof. All doors, including such ventilating doors as may be required by operators, are equipped with gaskets applied through a special method developed by Supercargo engineers. Many of the models are equipped with units for wet ice.**



# High truck and bus costs make oil a still bigger factor in profits

THE more costs of operation and replacement rise, the more money good *oil* can save.

That's why you need Quaker State HD Oil now more than ever. Refined from 100% pure Pennsylvania grade crude oil, this fine double-duty oil gives your engine working surface more protection — lubricates better, longer — keeps engines free from trouble-making sludge, gum and sticky "varnish."

Because of high replacement costs old equipment must be made to run safely as long as possible—it needs Quaker State HD Oil.

New equipment has to do more and last longer to pay off heavier investment—it needs Quaker State HD Oil. Regular use of Quaker State HD Oil in your equipment will assure you greater profits.

**QUAKER STATE**
**HD OIL**
AND SUPERFINE LUBRICANTS

**Use Quaker State HD Oil for trucks, buses, taxis, tractors. Use Quaker State Motor Oil for passenger cars.**

**QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA**

## CCJ Newscast

(CONTINUED FROM PAGE 246)

### NHUC SUMS UP HIGHWAY STAND

The National Highway Users Conference has urged examination of what it said might be "revolutionary, rather than evolutionary" proposals for meeting postwar highway problems, and emphasized state rather than Federal responsibility in meeting road needs.

In a publication entitled "Highway Development and Financing," the Conference: (1) Reiterated that Federal highway aid of the traditional kind is a Constitutional responsibility of the government, and as such should not be financed with Federal automotive taxes. (2) Reported that Federal highway aid at a "reasonable" level should be adequate to help the states meet the nation's major problems on interstate highways and through cities and other bottlenecks. (3) Warned that if Federal Aid is made too large "we may in effect subsidize some states in diversion or dispersion of their own road funds." (4) Contended that long-range planning by the states themselves, with highway users and taxpayers participating in these planning programs, "offers the only real solution to highway problems."

**How a Leading Trucker Transfers More Freight In Limited Dock Space**

THE Norwalk Truck Line Co., Norwalk, Ohio, finds the Pollard 5th Wheel Hydraulic Platform a great advantage at terminals where dock space is limited, because it cuts down the time formerly lost by dock workers while the yard hostler was cranking dollies.

According to Mr. R. J. Rosemary, Detroit terminal manager, it enables the trailer to be moved away from the dock in approximately 15 seconds from the time the tractor approaches the trailor front.

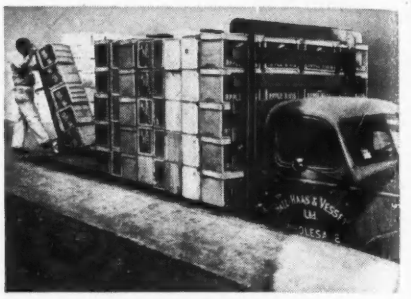
After purchasing one unit for the Detroit terminal and ascertaining its merits, the company ordered additional units for its Norwalk and Cleveland terminals.

*Write for Literature*

C. E. POLLARD CO.
14571 Schaefer Road Detroit 27, Mich.

Pollard
5TH WHEEL
HYDRAULIC PLATFORM


## Faster Truck Loading



**Hall, Haas & Vessey, Ltd., Los Angeles wholesalers, have devised a new method of truck loading that reduces loading time two-thirds and eases the work of employes. The truck to be loaded (or unloaded) is run on an 8 ton lift set in the loading zone and lowered until the back floor of the truck is level with the ground. Cases are then rolled onto the truck as simply as if they were being transferred from one end of the loading zone to the other.**

### NEW AIR COMPRESSOR STANDARDS

A voluntarily recorded standard covering tank-mounted air compressors of the types and sizes ordinarily used in the automotive industry, both single and two-stage from ¼ to 10 h.p. has recently been announced by the National Bureau of Standards, United States Department of Commerce. Details are published in a booklet entitled "Commercial Standard CS126-45" which is obtainable from the Superintendent of Documents, Washington, D. C.

This program, which will be of great benefit to users of such air compressors, is now being put into practice by the members of the Pneumatic Automotive Equipment Association with headquarters in Pittsburgh.

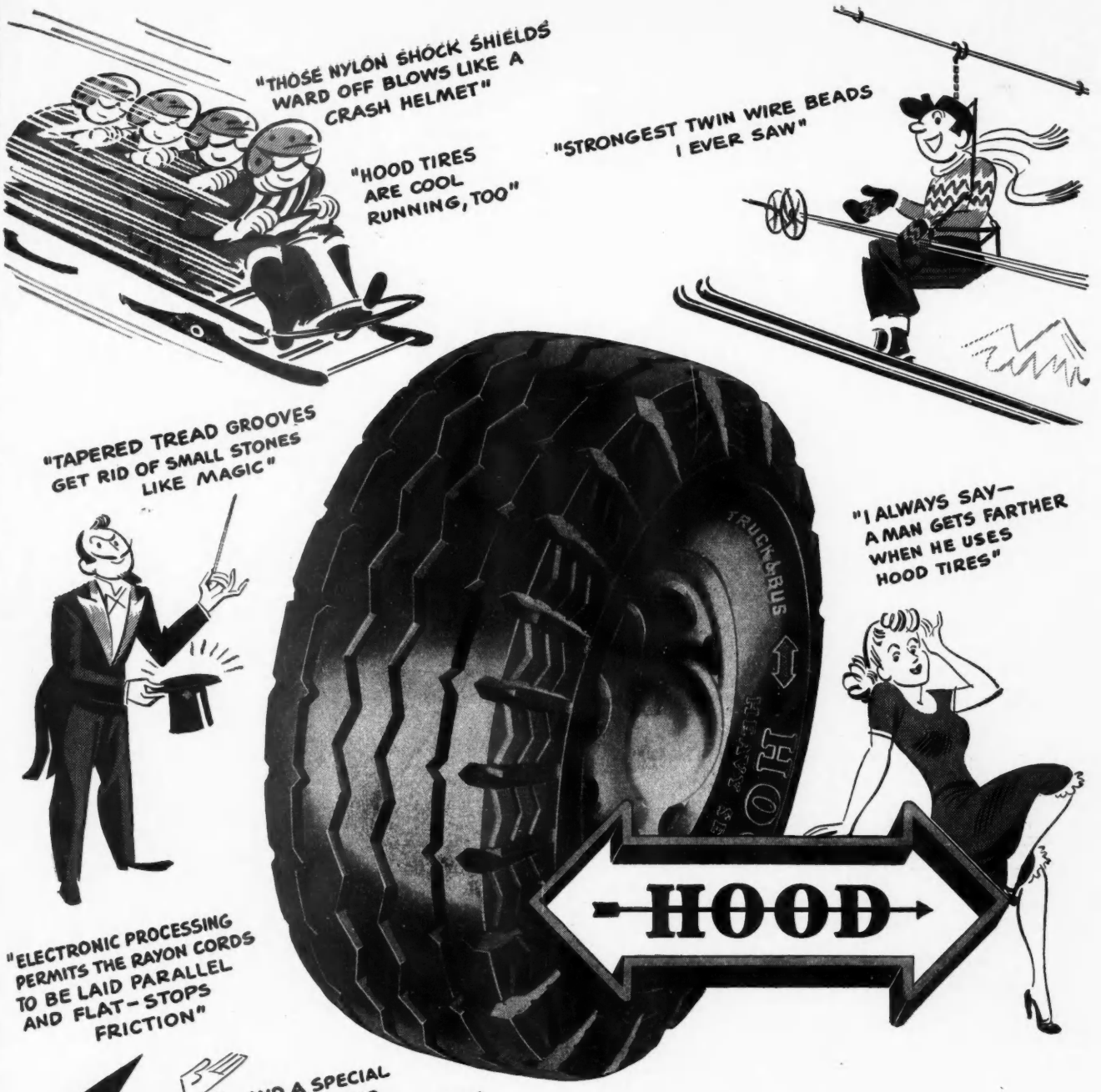
### S. ROBERT POSEY DIES

S. Robert Posey president of Shirks Motor Express, Lancaster, Pa. died suddenly on March 30 at Kingston, Jamaica where he had gone for a much-needed rest.

(TURN TO PAGE 378, PLEASE)

## Refrigerated Truck Bodies

**Dorsey Trailers, Elba, Ala., have added Models "LT" and "HT" Refrigerated Truck Bodies to the line of trailer equipment, supplementing the Z-RO Transport with refrigerated truck bodies to provide local transportation of frozen foods and perishables. The "LT" provides temperatures of 0 deg. F and above for frozen foods while the "HT" provides temperatures of 30 deg. F and above for meat, fish, and other perishables.**


"THOSE NYLON SHOCK SHIELDS WARD OFF BLOWS LIKE A CRASH HELMET"
"HOOD TIRES ARE COOL RUNNING, TOO"
"STRONGEST TWIN WIRE BEADS I EVER SAW"
"TAPERED TREAD GROOVES GET RID OF SMALL STONES LIKE MAGIC"
"I ALWAYS SAY— A MAN GETS FARTHER WHEN HE USES HOOD TIRES"
HOOD
"ELECTRONIC PROCESSING PERMITS THE RAYON CORDS TO BE LAID PARALLEL AND FLAT—STOPS FRICTION"
"...AND A SPECIAL BONDING DIP 'MARRIES' THOSE CORDS FOR LIFE"

**"WE MAKE 'EM EQUALLY LONG-WEARING FOR TRUCKS, PASSENGER CARS AND FARM SERVICE"**

Hood Rubber Company, a Division of The B. F. Goodrich Company, Akron, Ohio and Los Angeles, Calif.

# SPINNING POWER

GLOBE-UNION

*Globe-Union Batteries Start the World's Motors*

**GLOBE-UNION INC.**
**MILWAUKEE, WIS.**

ATLANTA • DALLAS • PHILADELPHIA
BOSTON • LOS ANGELES • OREGON CITY
MEMPHIS • CINCINNATI • MINERAL RIDGE, O.

*Full-Spark*

**"THE POWER PLUG"**

*Finer Performance Four Ways:*

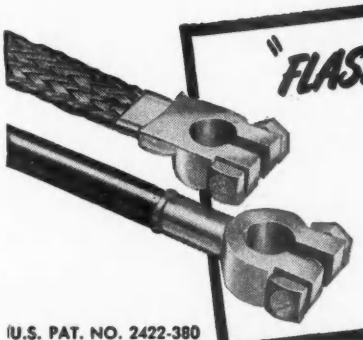
1. Quicker starting
2. Faster pickup
3. Full power from every ounce of fuel.
4. Heatrol insulator assures better motor operation.

The *Only* plug with Dura-D gap for a Hotter Spark — Less Wear

# WHITAKER "707"

## A GREAT SPARK PLUG CABLE SHEATHED IN NEOPRENE!

Research built the "707" Spark Plug Cable—and extensive laboratory tests have proven that it will withstand higher voltages and deliver a hotter spark, due primarily to lower capacitance, than other copper stranded spark plug cable. To protect its high efficiency, Whitaker sheathed "707" in superior neoprene, to withstand greater frictional wear, extreme cold, heat, moisture, grease, oil and corona. It's the toughest cable for the toughest jobs.

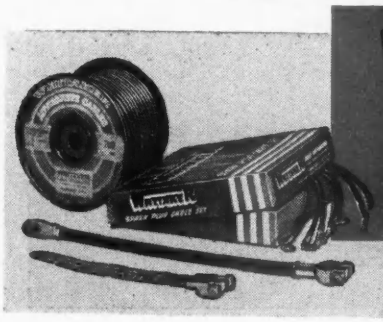


## "FLASH-WELD" BATTERY CABLES

The only perfect terminal-to-cable connection. Not a crimp . . . not soldered . . . but a terrific high amperage electric weld that fuses terminal and cable into one solid conductor. Exclusive on all Whitaker Insulated and Braided Battery Cable.

U.S. PAT. NO. 2422-380

**WHITAKER LABEL**
***Assures***
***Quality Cable***



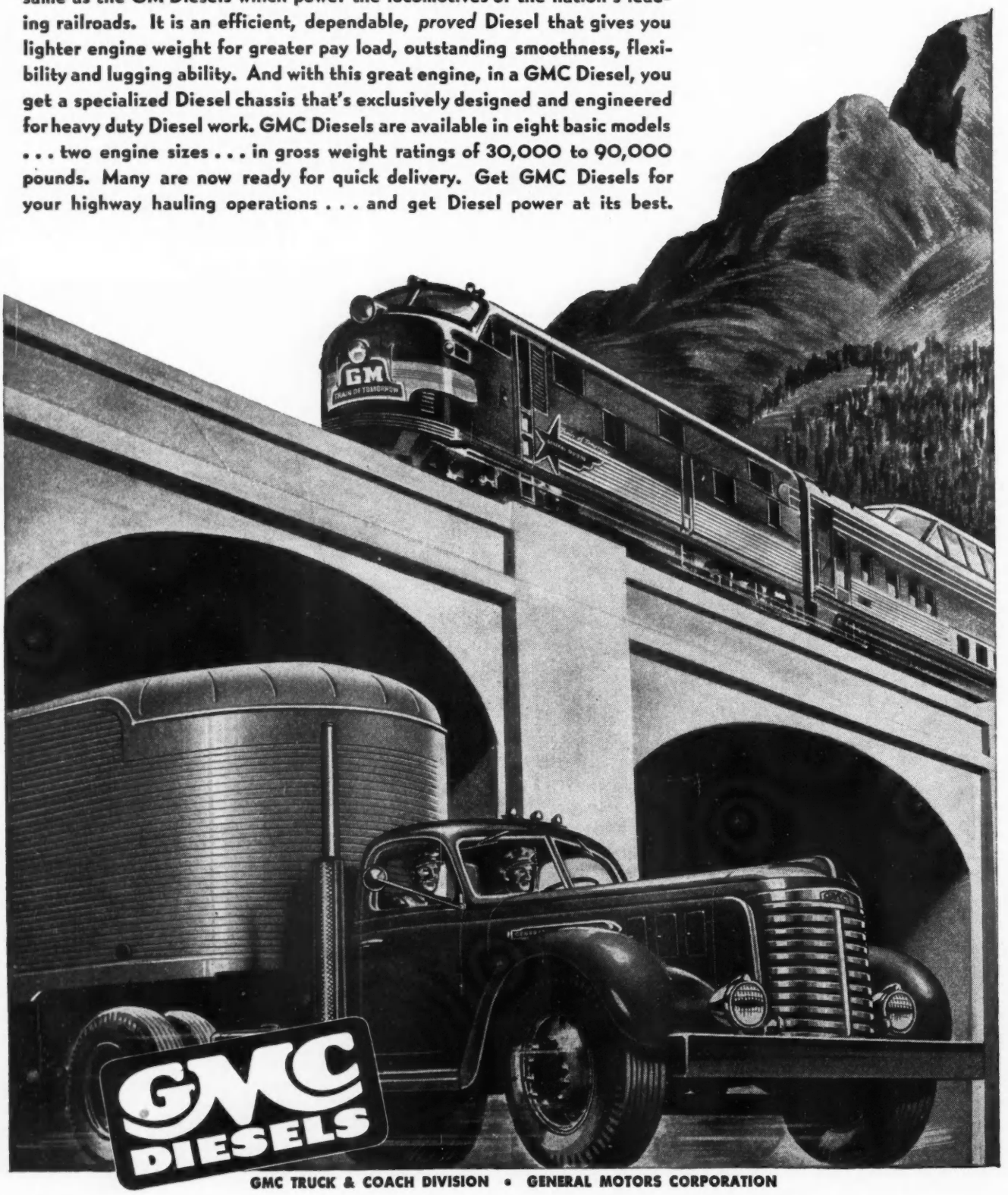
# WHITAKER
## CABLE CORPORATION

Pioneers and Leaders in Automotive Cable Products Since 1920

KANSAS CITY, MO.
ST. JOSEPH, MO.
PHILADELPHIA
LOS ANGELES

# DIESEL POWER *at Its Best*

**On every count a GMC Diesel truck is your best Diesel buy. Take the engine, for example. It's of famous GM 2-cycle design . . . basically the same as the GM Diesels which power the locomotives of the nation's leading railroads. It is an efficient, dependable, *proved* Diesel that gives you lighter engine weight for greater pay load, outstanding smoothness, flexibility and lugging ability. And with this great engine, in a GMC Diesel, you get a specialized Diesel chassis that's exclusively designed and engineered for heavy duty Diesel work. GMC Diesels are available in eight basic models . . . two engine sizes . . . in gross weight ratings of 30,000 to 90,000 pounds. Many are now ready for quick delivery. Get GMC Diesels for your highway hauling operations . . . and get Diesel power at its best.**




**GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION**

*Use postage-paid card inserted at page 137 for free information on advertised products*

*Scientifically Engineered . . .*

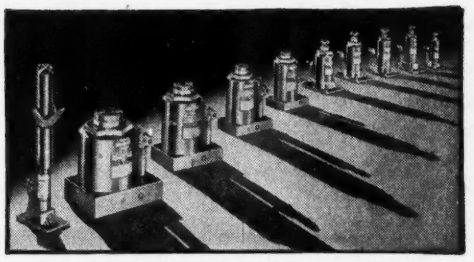
# HYPER*-POWER UNIT

## . . . WITH LONG-LIFE HEINITE PISTON

*Exclusive with* **HEIN-WERNER HYDRAULIC JACKS**

**raises cars and trucks with greater *EASE...SPEED...SAFETY***

*HYPER, according to the dictionary means *over, above, beyond the ordinary*



Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity as well as service jacks for shop use and Bumper-Lifts for passenger cars. See your H-W distributor or write us.

*Hein-Werner* HYDRAULIC JACKS

**HEIN-WERNER CORPORATION**
**WAUKESHA, WIS.**

1899 · 1900 · 1901 · 1902 · 1903
1904 · 1905 · 1906 · 1907 · 1908
1909 · 1910 · 1911 · 1912 · 1913
1914 · 1915 · 1916 · 1917 · 1918
1919 · 1920 · 1921 · 1922 · 1923
1924 · 1925 · 1926 · 1927 · 1928
1929 · 1930 · 1931 · 1932 · 1933
1934 · 1935 · 1936 · 1937 · 1938
1939 · 1940 · 1941 · 1942 · 1943
1944 · 1945 · 1946 · 1947 · 1948

50 YEARS OF GASKET MANUFACTURING EXPERIENCE

FIRST the PIONEER—then the LEADER in the Gasket Industry

McCORD CORPORATION
DETROIT 11, MICHIGAN

# TOBIN-ARP

## Your answer to faster shop service, lower costs and greater capacity-efficiency

## A Fast and Accurate Pin Fitting Machine That Cuts Costs

It's fast—it's accurate. For fitting pins in connecting rods and pistons of all internal combustion engines. Bores the wrist pin bushings and pin holes in piston as well as the bearing in the large end of the rod.

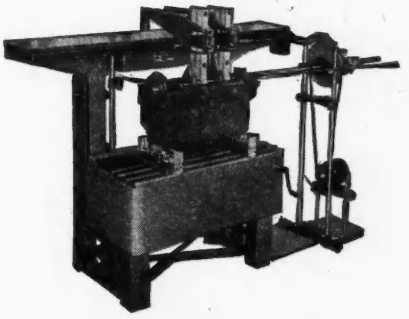
### TOBIN-ARP Model P-M 100 Piston Pin Fitting Machine

Eliminates any guess work and does a more accurate job faster than ever before. Produces a perfectly round hole, glass smooth.

Operator knows definitely the clearance or press fit. A set of six old pistons and six old rods can be fitted with six new oversized pins in just a few minutes.

### Investigate—Start Cutting Costs NOW

Write for complete details on this machine that has no gears, racks, screws, levers or handles. Everything is operated by oil, air, electricity—making it a very fast machine.



### TOBIN-ARP Align Boring Machines

NEW—two sizes (one illustrated) have been redesigned to assure more speed — capacity and accuracy.

They align bore main and camshaft bearings of all engines with 1-3/16" to 5¼" bearings, with speed and accurate centering. Motor driven with hydraulic feed.

**MODEL TA-14**

handles motors with an overall bearing spread of 76 inches.

### Write for Details

This unit or the larger unit (not illustrated) will prove a profitable investment in your shop.

## TOBIN-ARP MANUFACTURING CO.

**2845 HARRIET AVE. SO. MINNEAPOLIS, MINN.**



*Use postage-paid card inserted at page 137 for free information on advertised products*

# Talk about a real

CAPACITY 2000 LBS

CAPACITY 3000 LBS

CAPACITY 4000 LBS

CAPACITY 12 TONS

CAPACITY 8 TONS

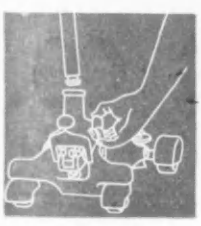
CAPACITY 5 TONS

CAPACITY 3 TONS

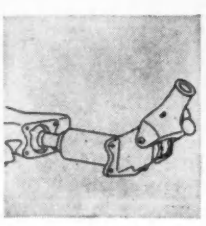
CAPACITY 1½ TONS

CAPACITY 1½ TONS

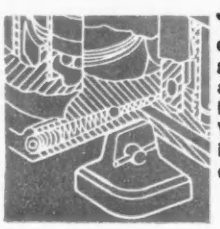
CAPACITY 2 TONS



**EXCLUSIVE SAFETY FEATURE** on hydraulic floor and curb models is AUSCO's removable handle. It eliminates the floor hazard of stumbling over it and, when removed, it also acts as an extra safety-catch.



**EASY-TO-REMOVE POWER UNIT** is to be found on AUSCO Hydraulic Floor Jacks. It is designed for ease of assembling and quick dismantling to service. Just remove four bolts and the entire unit will slide out.



**"IN-LINE" VALVE ACTION** on hydraulic axle jacks gives smooth, dependable lifting power with no lost motion or effort. Valves are easily accessible so jack need not be dismantled for cleaning.

## . . . with *Ausco* you always find the CORRECT JACK FOR YOUR SPECIFIC JOB!

**Yes, you can be selective** when you choose from AUSCO'S complete line of hydraulic and mechanical jacks! There's an AUSCO JACK for every automotive and heavy duty service purpose . . . and each one is completely guaranteed.

It's easy to find the correct AUSCO JACK for your specific requirements. Choose from a wide range of the latest jack models . . . capacities from 1½ to 12 tons. And every AUSCO JACK is priced to help you *keep down* maintenance and equipment costs!

Don't let your service operations be hampered because of inefficiency or shortage of jacks! **Contact your helpful AUSCO Jobber NOW!** Ask him to show you the AUSCO JACK which will best meet your all-around requirements — *you'll be glad you did!*

**AUTO SPECIALTIES MANUFACTURING COMPANY • St. Joseph, Mich.**




G-2700 CCJ

**AUSCO Jacks**

**All Fully Covered by PATENTS!**

# Combine Sturdiness-Strength-Stamina with Heavy-Duty HARDWARE

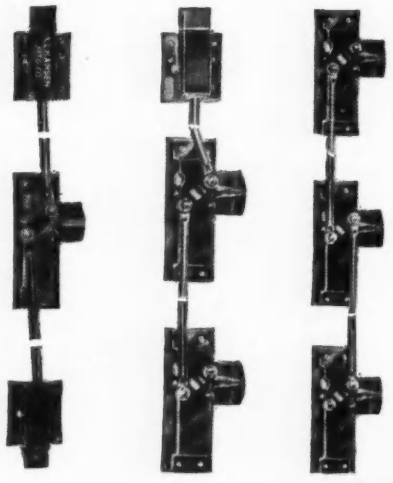
*Body Builders*
*Fleet Owners*

*This Door Lock is very adaptable!*

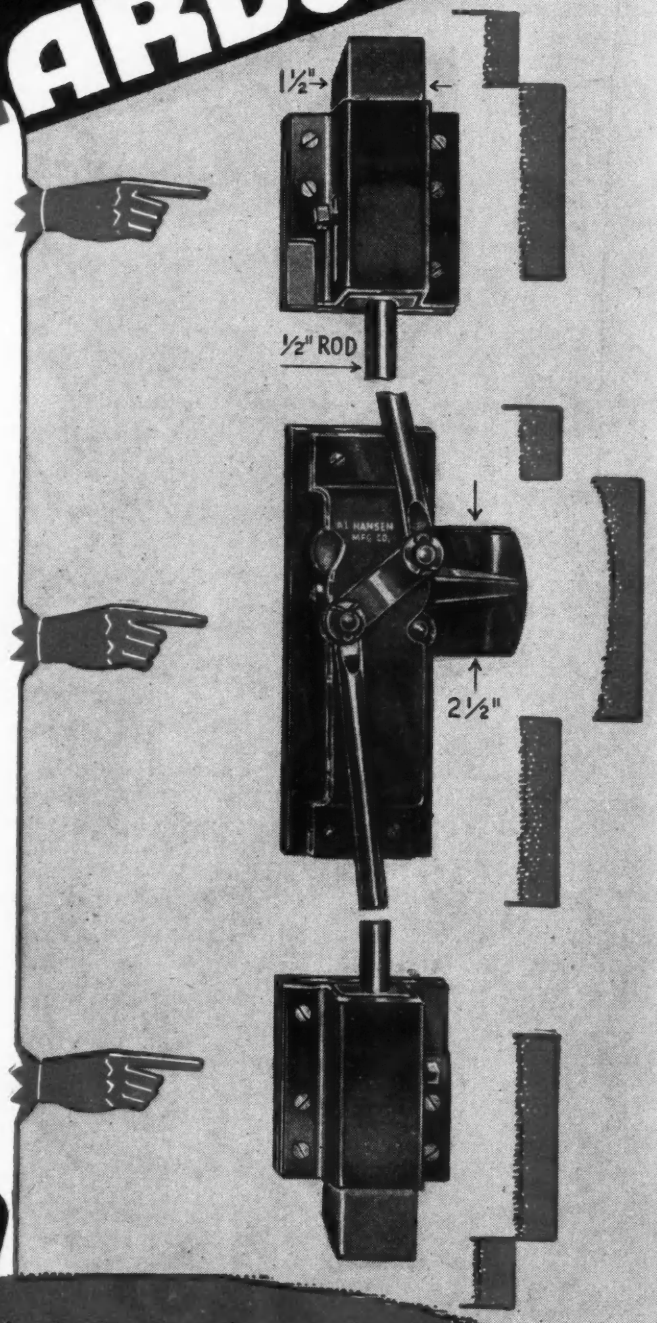
**MADE especially for heavy-duty service, Hansen No. 111 Lock is rugged, durable, adaptable. Nothing to assemble. No extras to buy. Complete.**

1. Outside handle and locking mechanism are adaptable for right—or left-hand doors.
2. Lock may be used with center mechanism at either top or bottom, or both, as desired.
3. Bolts at top and bottom are 1½" wide. Center bolt is 2½" wide. Rods are ½" dia.
4. Locking bolts are held open or closed **under pressure!** Lock cannot accidentally open.

**Supplied as standard equipment with ½" dia. rod 48" top, 36" bottom, for doors up to 7'; or two 48" rods for doors up to 8'. Choice of three handles. Request Details.**



**Lock may be used in three combinations, as shown.**




## Hansen

**The Hardware for Hard Wear**

HANSEN HARDWARE for Commercial Bodies

A. L. HANSEN MFG. CO. 5047 RAVENSWOOD AVE. CHICAGO 40, ILL.

# wix ENGINEERED FILTRATION pays!

ENGINEERED FILTRATION

## AND THE PAY-OFF IS IN YOUR SAVINGS!

### FOR GREATER ENGINE PROTECTION...

When dirt builds up in motor oil, lubricating efficiency sags, and harmful abrasives get in their dirty work. Take dirt OUT and keep engine protection HIGH the sure way . . . with WIX ENGINEERED FILTRATION!

### FOR HIGHER OPERATING EFFICIENCY...

Clean oil lubricates efficiently . . . lets motors operate at peak performance for extra hours, avoiding breakdowns caused by dirt in oil. You get this *clean oil lubrication* is increased. WIX ENGINEERED FILTRATION is *your* with WIX Filters and Filterefils!

### FOR LOWER OPERATING COSTS...

WIX Filters and Filterefils keep Fleet vehicles running longer and more efficiently. Engine wear, part failure and breakdowns are decreased . . . profitable operating time *way* to increased profits in '48!

wix
TRADE MARK

FILTERS AND FILTEREFILS

WIX ACCESSORIES CORP'N • GASTONIA • N•C•

**CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 11 Wabash Ave., Toronto 3, Ont.**



*Use postage-paid card inserted at page 137 for free information on advertised products*

# *Here's Your Formula For*

# More Profitable Business in 1948!

**OLD FRIENDS ARE YOUR BEST FRIENDS...**

Wise repairmen all over America count on their Toledo Distributor to help build their business. They know he supplies them with Genuine Toledo Parts —none finer in all the world. But more than this, they know he's interested in *them*—in increasing *their* profits. A profitable shop is the Toledo Distributor's best customer.

Your Toledo Distributor does no retail repair work of any kind. He's never your competitor. His many services are yours because he wants to help *you* do a better job, get more customers in *your* shop.

Check these services offered by your Toledo Distributor. See how they can help you make more money this year. First of all, your Toledo Distributor extends you friendly credit. Then, too, he carries a *complete* line of highest-quality parts for *all* makes of cars. He provides a modern machine shop for your "out-of-shop" work. He offers you technical help on your "tough" jobs. He gives you business tips—advises you on successful merchandising programs. And he offers you all this service in one convenient place, under one roof.

Get to know your Toledo Distributor. Depend on him for the replacement parts you need . . . use his help to make 1948 the most profitable year you've ever had! We suggest you call him today.

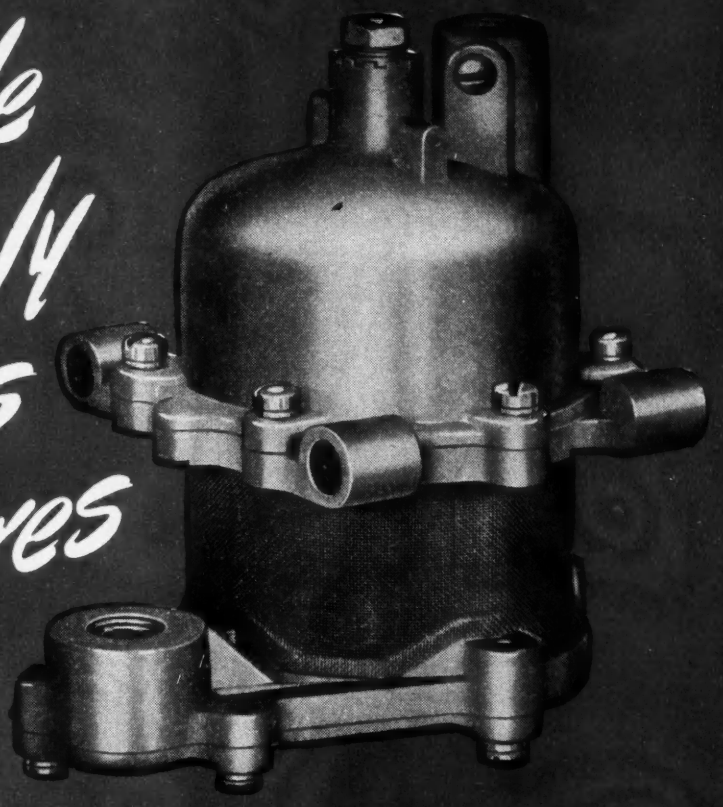
## *The* TOLEDO

**STEEL PRODUCTS COMPANY**

**TOLEDO, OHIO, U. S. A.**

***Since 1906—Makers of Fine Automotive Parts***

# A Reliable Fuel Supply Minimizes Road Failures



## the CARTER Electric Pusher Pump

Another CARBURETER
TRADE MARK REG. U. S. PAT. OFF.
MARCA REGISTRADA
Precision Product

With a proven record of efficiency and reliability under the most severe operating conditions, the Carter Electric Pusher Pump has enabled thousands of vehicle owners and operators to avoid costly road breakdowns due to fuel pump failure.

Located at the bottom and inside the fuel tank, this motor-driven centrifugal pump keeps fuel in the line under continuous pressure. Fuel for starting is supplied to the carbureter instantly.

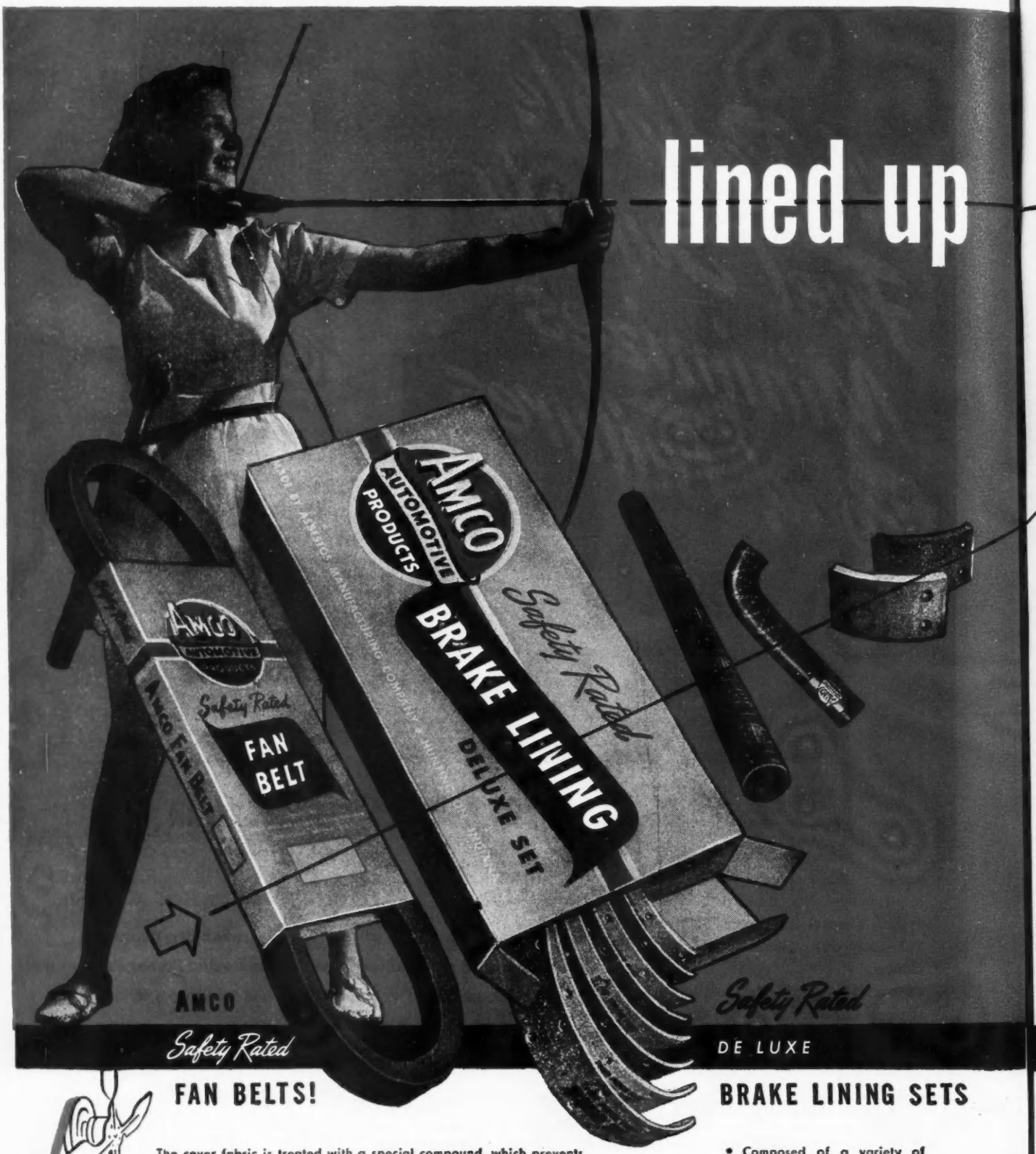
Send for technical bulletin giving complete information.

598

acf

Carter Carburetor Corporation • St. Louis 7, Mo.
Division American Car & Foundry Company

# lined up




## FAN BELTS!

The cover fabric is treated with a special compound, which prevents slipping between belt and pulley. This minimizes wear and power loss. • *Top & bottom cushions are heat resistant* • *Cords are floated in special gum material* • *Cords are heat-treated; multi-twist construction* • *Engineered to ride properly in the pulley.*

## BRAKE LINING SETS

- Composed of a variety of materials with differing friction characteristics to insure proper braking action.
- Specifically engineered for specific brake service
- Easy installation—instructions in each carton

DE LUXE BRAKE SETS • MOLDED AND WOVEN LINING •

# for plus-Profits...

## *Safety Rated* products aim straight at the PLUS-Profit Side of your Balance Sheet

**You Hit the Bull's Eye** of dependable Heavy Duty performance with lower operating costs when you use AMCO products! SAFETY RATED Quality is the reason. It turns into PLUS PROFITS on your Balance Sheet by cutting down cost per payload. To bring you these extra dividends from your fleet operation, AMCO makes *triple-sure* that each Heavy Duty Brake Lining, every Truck Fan Belt and all other AMCO products are SAFETY RATED by these proven ways: Rigid laboratory tests PREVENT COSTLY LAYUPS in your shops . . . Tougest car and truck factory proving ground tests result in REDUCED LABOR and MAINTENANCE COSTS . . . Billions of brake miles under severe Heavy Duty conditions assure you of TOP PERFORMANCE every time.

The inevitable result of this quality policy will make sense to you, Mr. Fleet Operator. SAFETY RATED performance of replacement parts allows you to make MORE PROFIT PER TRIP. You'll find the proof on the *PLUS* PROFIT Side of your Balance Sheet!

NOW is the opportune time to let your AMCO JOBBER show you how SAFETY RATED Quality adds PLUS PROFITS on your Balance Sheet! Check into it today or write Dept. D-7.

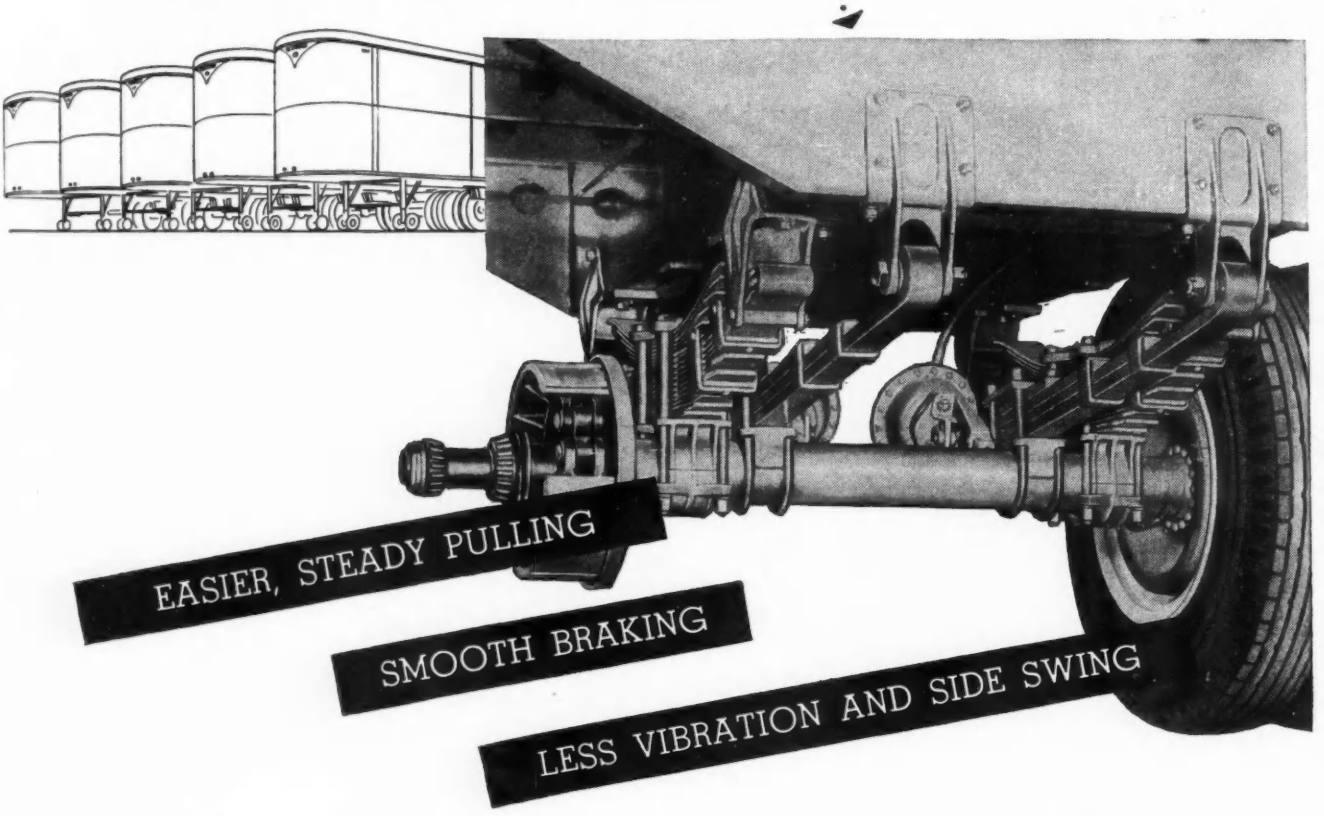
**Asbestos Manufacturing Company**
HUNTINGTON • INDIANA

Copyright 1948 By Asbestos Mfg. Co. R-2666-CCJ

# AMCO

• • CLUTCH FACINGS • HOSE • CAR MATS • FAN BELTS

# What this exclusive SUPERCARGO feature means to fleet operators...




Spring steel torque arms are a Supercargo first! These stabilized arms take all the pull of the trailer and free the springs to cushion the load only. Combined with free-floating, quadri-point spring suspension, they complete a safety undercarriage design that provides maximum assurance against load shifts and damage to the trailer under severe usage.

This revolutionary engineered construction conserves the power of the tractor and directly affects fuel consumption. To the driver it means easier handling, less driving fatigue.

Thus, *engineered construction* plus *advanced design* and *straight line production* make Supercargo Trailers outstanding as examples of operating efficiency and economy.

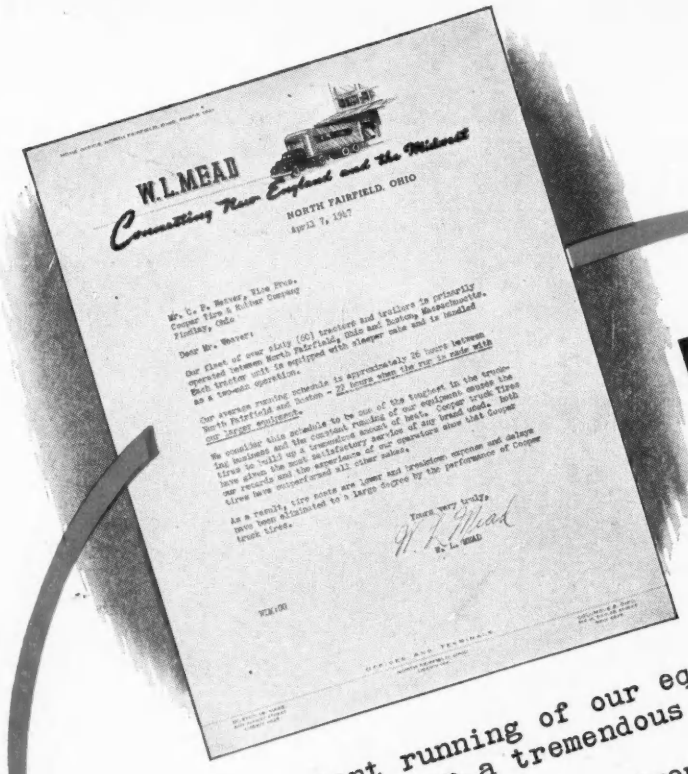
Small wonder that with so many fleet operators today, *the swing is to Supercargo!*

**SUPERCARGO TRAILERS**

MANUFACTURED BY

**AMERICAN BANTAM CAR COMPANY, BUTLER, PA.**

*Use postage-paid card inserted at page 137 for free information on advertised products*


W. L. MEAD
Connecting New England and the Midwest
NORTH FAIRFIELD, OHIO
April 7, 1947
Mr. C. P. Beaver, Vice Pres.
Cooper Tire & Rubber Company
Findlay, Ohio
Dear Mr. Beaver:
Our fleet of over sixty (60) tractors and trailers is primarily operated between North Fairfield, Ohio and Boston, Massachusetts. Each tractor unit is equipped with sleeper cabs and is handled as a two-man operation.
Our average running schedule is approximately 26 hours between North Fairfield and Boston - 22 hours when the run is made with our larger equipment.
We consider this remarkable to be out of the toughest in the trucking business and the constant running of our equipment causes the tires to build up a tremendous amount of heat.
Cooper truck tires have given the most satisfactory service of any brand used.
Both our records and the experience of our operators show that Cooper tires have outperformed all other makes.
As a result, tire costs are lower and tie-ups, expense and delays have been eliminated to a large degree by the performance of Cooper truck tires.
Yours very truly,
W. L. MEAD
W. L. MEAD

# profit by the experience of others

"The constant running of our equipment causes the tires to build up a tremendous amount of heat.

"Cooper truck tires have given the most satisfactory service of any brand used.

"Both our records and the experience of our operators show that Cooper tires have outperformed all other makes."

W. L. MEAD
North Fairfield, Ohio

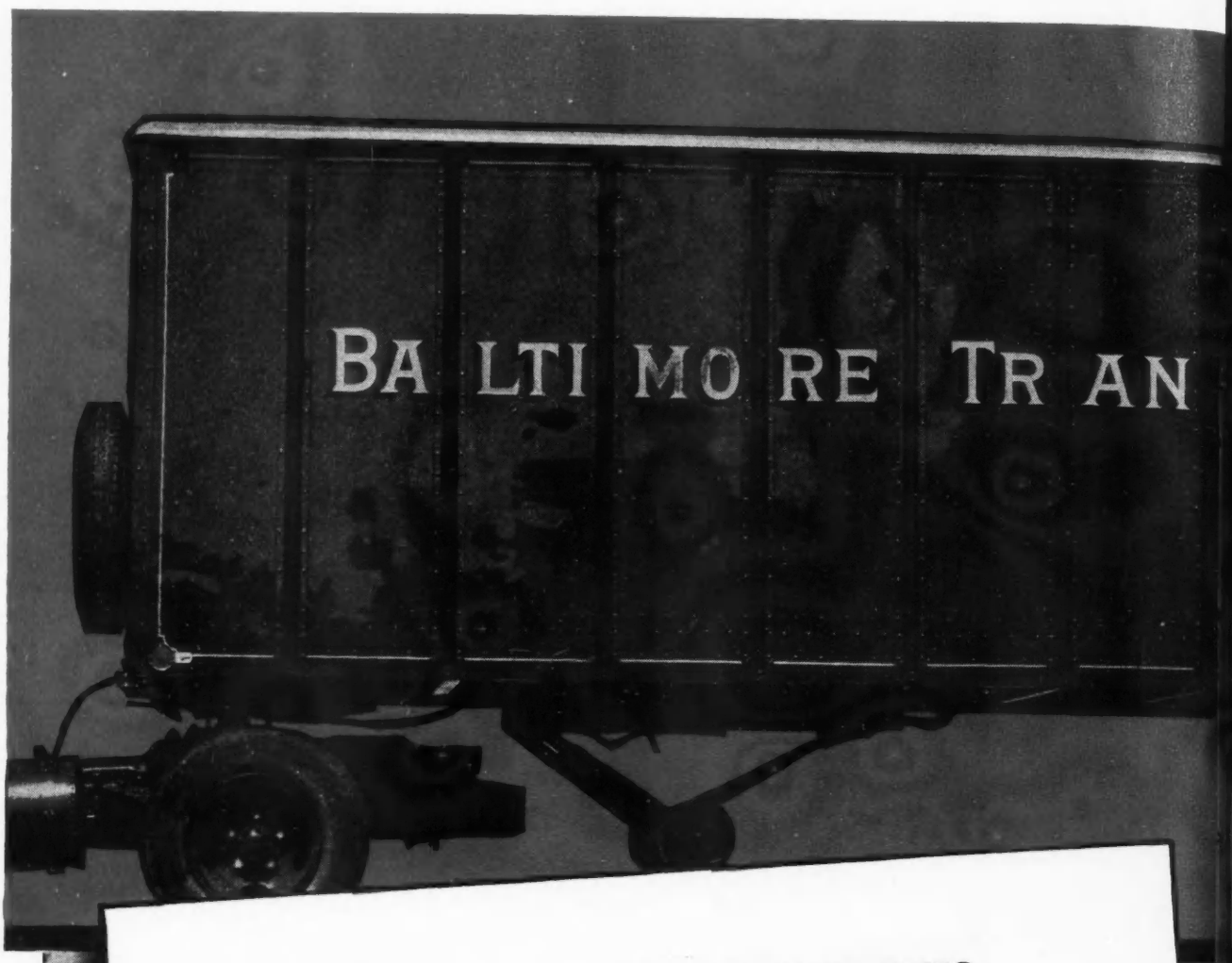
**Cooper**
ARMORED-CORD
**TIRES**

**Try cooler-running Coopers on your toughest hauls. Match them against any other brand. Let your own records prove that Coopers really make payloads more profitable.**

**DISTRIBUTED STRESS CONSTRUCTION is the important reason why tire dollars go farther when trucks roll on cooler-running Coopers. See your Cooper dealer and see him soon for complete details about DSC — how it works, how it protects against localized flexing and high friction heat.**

## Cooper Tire & Rubber Company

*Factories at Findlay, Ohio*




ANOTHER "OLD-TIMER" PROVES

# ALUMINUM TRAILERS CAN TAKE IT

...in 15 years of highway service

**Your investment in a premium trailer deserves the best!**

This "Old-Timer" went into operation 15 years ago—*and is still in daily, highway service.* Built of Alcoa Aluminum, it was the first of 134 aluminum monocoque trailers bought by the carrier—*and all but two of them still operating!* (One destroyed by fire, the other, wrecked during the war, "cannibalized" for repair parts.)

Aluminum trailers are built to last because aluminum's lighter weight makes possible strong, massive body sections. Resistant to corrosion, they run longer with less maintenance.

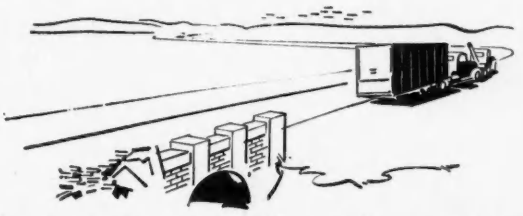
Lighter weight means a threefold bonus, too, because you can carry more payload with the same gross weight—save license and tax fees—ease the load on chassis, motor and brakes. ALUMINUM COMPANY OF AMERICA, 2139 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in principal cities.

## WHEN ACCIDENTS DO HAPPEN

**you can repair aluminum fast... at low cost ... right in your own shop**

### Case of Company X

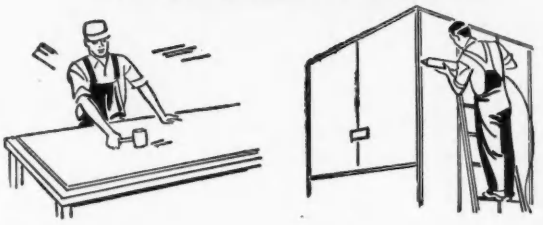
### The "BAD NEWS"



X company's tractor and aluminum monocoque trailer, being towed after the tractor developed mechanical trouble, was crossing a culvert at about 45 mph when the rig swung out of line and the tractor axle struck the abutment. It glanced off, but threw the trailer so that its axle caught the abutment, tearing off four steel-reinforced concrete pillars and the brickwork between.

Running gear was torn completely loose. The rear end of the trailer, with a 12-ton load of steel cylinders, was dropped to the pavement and dragged about 150 feet before it could be halted.

### The "GOOD NEWS"



The running gear members had to be replaced, one side sill and panel straightened, and three side posts reriveted. The unit was back on the road in less than 10 days, *and the trailer was ready to go before the tractor axle could be repaired.*

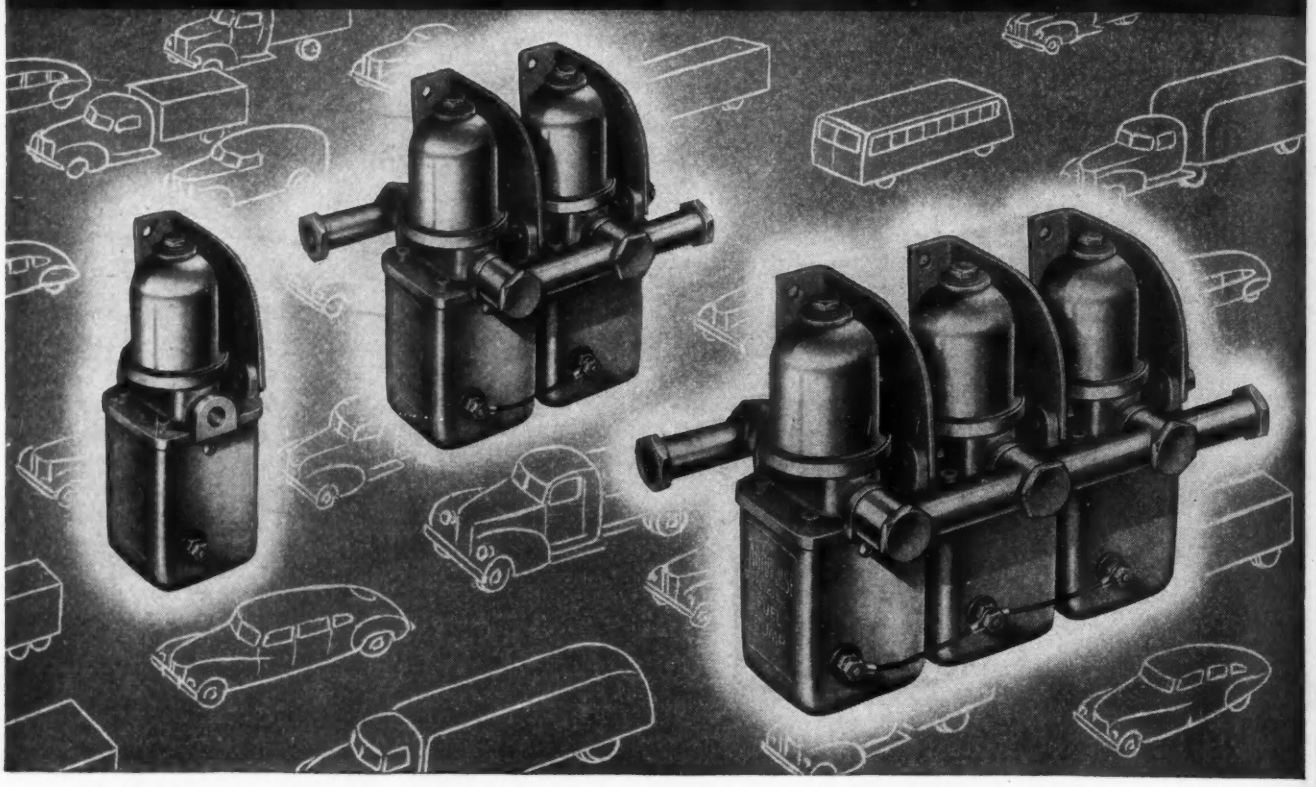
For long, maintenance-free service, for quick, low-cost repairs you can make right in your own shop without special welding equipment—insist on trailers built of Alcoa Aluminum. Alcoa engineers will be glad to work with your trailer builder on body designs.

**ALCOA** FIRST IN **ALUMINUM**

ALCOA ALUMINUM 1888 1948 60 YEARS OF SERVICE

# AUTOPULSE ELECTRIC FUEL PUMPS

## *will do a better job on any vehicle in your fleet*



**Autopulse Electric Fuel Pumps in single or multiple units are the answer to the whole fuel pump problem; because they—**

1. **Fit *any* vehicle, reducing your fuel pump stock to a small inventory.**
2. **Deliver fuel exactly as needed at constant pressure. This saves fuel, and carburetors are *never* flooded or starved.**
3. **Can be used with *any* type or grade of liquid fuel.**
4. **Will not vapor-lock in any climate or altitude.**
5. **Avoid the need of over-rich mixtures with resulting carbon deposits.**
6. **Always provide ample power for heavy going.**
7. **Eliminate ragged acceleration after idling.**
8. **Prevent stalling in traffic.**

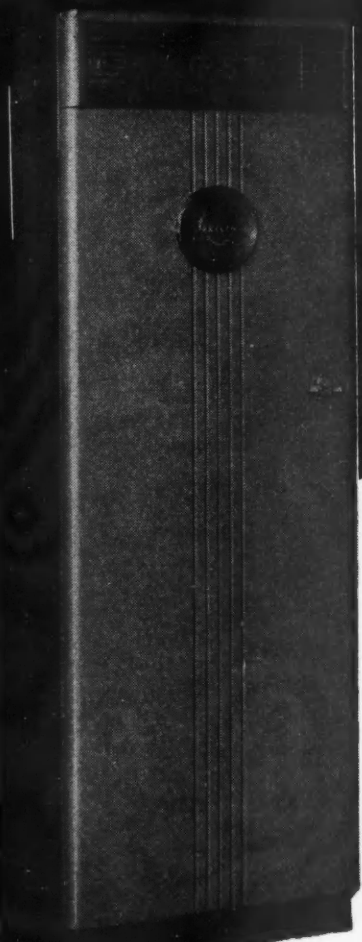
AUTOPULSE ELECTRIC FUEL PUMPS COST THE SAME AS BEFORE THE WAR. THERE HAS BEEN NO PRICE INCREASE.

**Autopulse Fuel Pumps are quickly and easily installed—may be used alone or as auxiliary or standby. When used as an auxiliary, Autopulse uses no current except when extra demand automatically calls it into action.**

2879

# AUTOPULSE *Corporation*

LUDINGTON, MICHIGAN



# PHILCO

## WORLD'S LARGEST RADIO MANUFACTURER

*Now* BRINGS SENSATIONAL NEW DEVELOPMENTS AND ADVANCED ENGINEERING TO

## FM RADIOPHONE COMMUNICATIONS SYSTEMS

*For Every Need*

**30-44 Mc.**
**and**
**152-162 Mc.**

- Proven Reliability
- Advanced Engineering Design
- New Operating Efficiency and Economy
- Nationwide Service Organization
- Prompt Delivery of All Models

**Industrial Division, Dept. A-6**
**Philco Corporation**
**C and Tioga Streets**
**Philadelphia 34, Penna.**

**Gentlemen:**

**Please send me information about the new PHILCO FM Radiophone Communications Systems.**

**NAME**_____

**ADDRESS**_____

**CITY**_____

# PHILCO

*INDUSTRIAL DIVISION*

PHILADELPHIA • PENNSYLVANIA

# Are you using the RIGHT brake lining on every unit of your fleet?

## AMERICAN BRAKEBLOK AXLE SETS ARE "FRICTION-ENGINEERED"—BY MAKE—BY MODEL

Even vehicles of the same make and capacity, with the same size brakes—but built in different years—may have radically different frictional requirements. And, of course, requirements of various makes and various brakes differ sharply.

This is why American Brakeblok produces 25 different types of frictional material. From this wide range of first quality linings, American Brakeblok Axle Sets are individually "*friction-engineered*" to take into account all the braking factors peculiar to each car, truck or bus. The result is a brake lining set with exactly the right combination of braking values for best performance and economy.

American Brakeblok is a distinctly different and better kind of lining. It's the same *all the way through*. From first to last mile, it retains its original frictional characteristics . . . withstands the highest temperatures and pressures of heavy-duty service.

So for surer stops and longer life with less maintenance cost, always reline with American Brakeblok Axle Sets. Your NAPA Jobber will supply you. Remember to give your jobber complete information on the make and model of vehicle and the type of braking system—manual, vacuum or air. You'll get lining that's "friction-engineered" to your specific needs.

# 3 Distinct Series of Heavy Duty Brake Lining

**REGULAR** (may be used on manual, vacuum or air brakes): This lining is recommended for the great majority of commercial vehicles—vehicles equipped with manual braking systems in which the driver is not aided by auxiliary power equipment of any kind. Actually, "regular" is usable on *all brake systems*—but on vehicles with vacuum booster or air brake equipment, this lining may produce severe brake action resulting in needless reduction of service life. Available in rolls, as well as axle sets.

**1000 SERIES** (may be used on vacuum and air brakes): This series is engineered primarily to give the correct deceleration, with maximum wear and economy, under operating conditions encountered in vehicles with vacuum power booster systems. The increased power which these systems give the driver makes it possible to produce normal deceleration and safe stops with slightly lower frictional values than those used in American Brakeblok "Regular" lining. The 1000 Series should be used only on vehicles with sufficiently powerful brake systems. Available in axle sets only.

**2000 SERIES** (for use on air brakes and powerful vacuum systems): Here is lining especially designed to give maximum mileage and efficiency when operating under extreme braking conditions. To meet these conditions satisfactorily, it was necessary for American Brakeblok engineers to devise a new manufacturing process, now patented. The 2000 Series will outlast either the "Regular" or 1000 Series linings. It also has a lower frictional value, and the brake system must be powerful enough to use this type of material. Available in axle sets only.

**"C" SERIES:** Thick blocks to be used on air brakes (or powerful vacuum systems).

NAPA

American Brakeblok is distributed through 39 NAPA Warehouses, assisting jobbers everywhere to give prompt, complete service.

American Brakeblok

REG. U.S. PAT. OFF.

BRAKE LINING

AMERICAN Brake Shoe COMPANY

AMERICAN BRAKEBLOK DIVISION
DETROIT 9, MICHIGAN

# Better Carburetion and Better Engine Performance

WITH THE

# DUREX

## GASOLINE FILTER

**This revolutionary Durex gasoline filter stands guard over the fuel supply to the carburetor. Lint, dirt, scale, water and other foreign particles that might "foul up" engine performance are trapped and collected in the glass bowl. Gasoline mileage is increased, carburetor maintenance reduced, when fleets are equipped with this finer filter.**

**The Durex filter unit represents an important development in powder metallurgy. Its bonded metal spheres cannot chip or flake under ordinary conditions. Filtration is finer, construction sturdier, protection more complete with the new material which has been proved by use in military and commercial aircraft.**

**Durex gasoline filters are low in cost, easy to install. They do a better job for a long, long time.**

UNITED SERVICE MOTORS

***Durex gasoline filters are distributed by United Motors Service. Order from your distributor.***

**MORAINE PRODUCTS**

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

**DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO**

# WE CALL 'EM BY THEIR FIRST NAME— "MANLEY"

SWIVEL WHEELS (optional at slight extra cost)

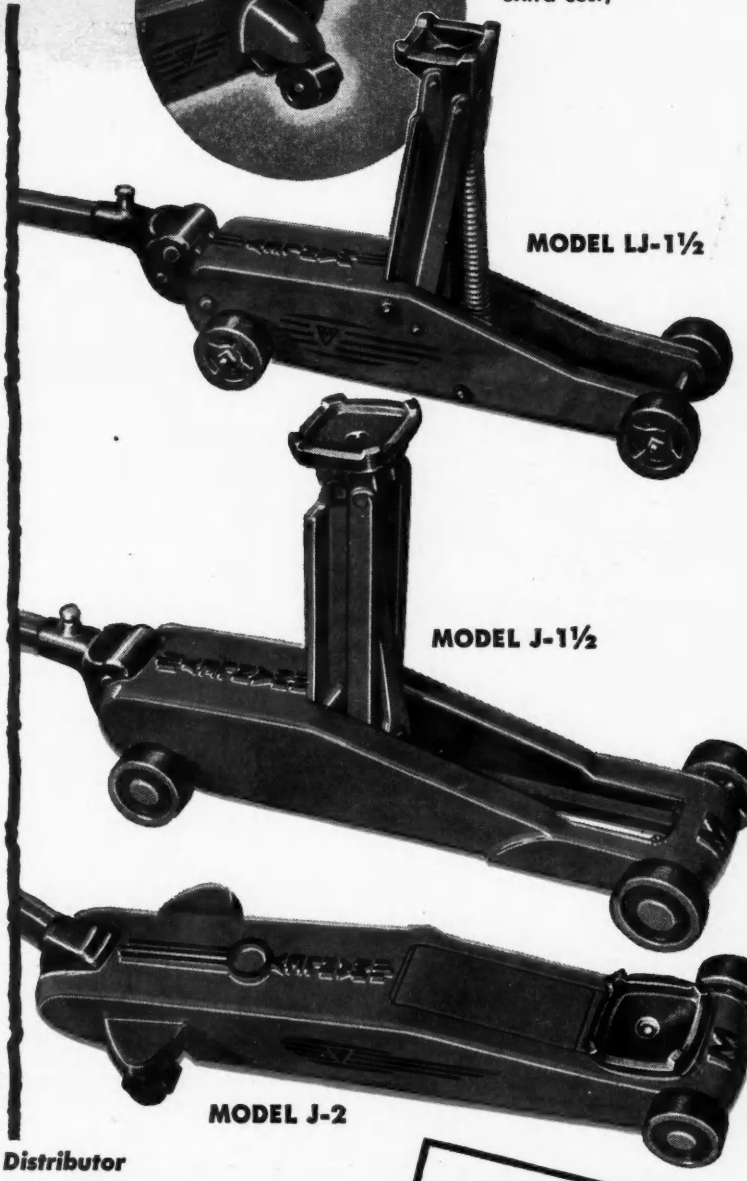
***SURE, there are Manley Presses, Manley Floor Cranes, Manley Wrecking Cranes—a whole crew of minute-and-muscle-saving "Manleys." When the work gets jammed up, we can put through a lot more jobs when we can "let Manley do it."***

These Manley All-Steel Jacks are precision-made. They're built to take punishment. They have what it takes to stay on the job where jacks are the busiest equipment in a busy shop. Complete hydraulic unit easily removed for cleaning or adjusting.

**MODEL LJ-1½**—A handy, light-weight, all-steel curb jack. Capacity 1½ tons. Available with regular or swivel wheels.

**MODEL J-1½**—A ruggedly-built jack for shop use. One-piece steel frame and steel lifting arm. Capacity 1½ tons.

**MODEL J-2**—for heavy duty service, 2-ton capacity. All-steel, box-type one-piece frame and steel lifting arm. Manley also offers MODEL J-4 (not illustrated) of full 4-ton capacity.



MODEL LJ-1½

MODEL J-1½

MODEL J-2

● ***Order From Your Manley Distributor***

**ACCO**

York, Pa. • Chicago • New York • Portland • San Francisco • Bridgeport, Conn.

TRADE MARK

MANLEY MANUFACTURING DIVISION
AMERICAN CHAIN & CABLE

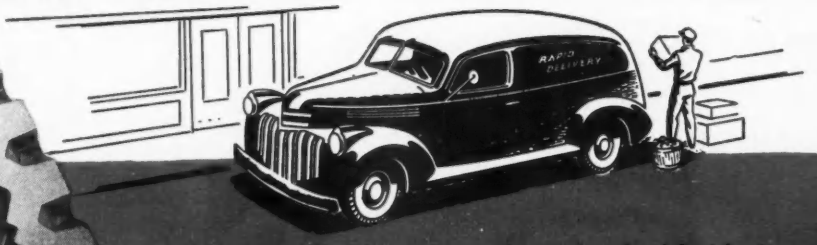
MANLEY Automotive Service EQUIPMENT

*Manley Equipment Saves Man Hours*

Whatever the Job

# GILLETTE

## HAS THE TIRE TO DO IT BETTER



Gillette Engineers have made a detailed study of the jobs tires are expected to do in the dozens of services where trucks operate. That's the big reason why Gillette gives you a real edge in economical operation. Gillette Truck Tires, before they ever reach your dealer, are thoroughly tested and proved to give you better service for every specific job.

Call your Gillette Tire Dealer today. He can help you to cut operating costs and increase efficiency.

**FOR STOP-START DELIVERY SERVICE**
**GILLETTE**
***Super Delivery***
25% more tread depth makes this the ideal tire for your delivery fleet.

**FOR HIGH FLOTATION WORK**

**The GILLETTE Constructor**
Carries 30% greater loads, has 32% thicker tread. Built to "stay on top" in soft going.

**OVER THE HIGHWAY**

**The GILLETTE Super-Ribbed**
Here's the famous "beat the heat" tire. Favorite mileage tire with long haul operators everywhere.

**ROCKY GOING**

**The GILLETTE All Purpose Rock Service Construction**
2 Ply Shock Shield and special rayon cord give this tire 30% more body strength. 25% greater tread depth resists cuts and bruises.

## A BEAR FOR WEAR

# GILLETTE

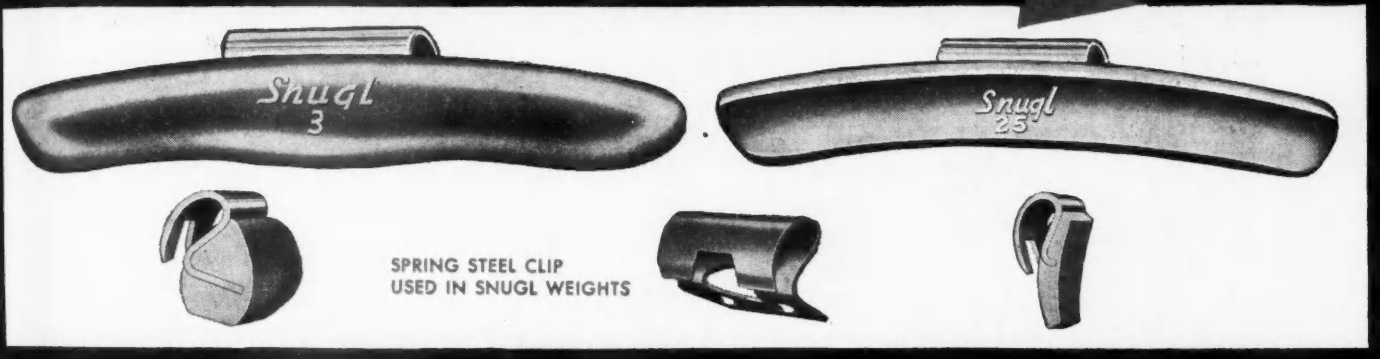
## TRUCK TIRES

A BEAR FOR WEAR GILLETTE TIRES

Gillette Tire Division of United States Rubber Company • 1230 Avenue of the Americas • New York 20, N. Y.

# Snugl

## Means
## WHEEL BALANCING WEIGHTS
## for every
## WHEEL BALANCING PROBLEM
## on
## PASSENGER CARS, TRUCKS, BUSES
## and AIRCRAFT




LOOK FOR THESE FEATURES THE NEXT TIME YOU BUY WHEEL BALANCING WEIGHTS

- The famous FADE-A-WAY design . . . and there's a special thin weight designed for application under wheel covers or shields.
- The exclusive "DOVE-TAILED" spring steel clip.
- The name SNUGL (registered trade mark) on every weight.

And it's good to know that all type SNUGL balance weights are made from highest quality antimonial lead . . no scrap metal used at any time.

PAT. NOS. 2,036,757 D119,321 D5189

MANUFACTURED ONLY BY

## MID-WESTERN AUTO PARTS

824 EAST ELM ST. KOKOMO, INDIANA

FACTORY BRANCH

736 SOUTH GREENLEAF WHITTIER, CALIFORNIA

CHEVROLET

# NEW CHEVROLET ADVANCE-DESIGN '48 TRUCKS ARE LOWEST IN PRICE!

## and have *all* these new and finer features

Here are the *newest* trucks—the *latest* and the *greatest* features—the *biggest* values—with the *lowest prices* in the volume field! Model for model, and with comparable equipment and specifications, Chevrolet Trucks *list for less* than competitive makes—some models *as much as $150!* Here is Advance-Design that provides the cab that "breathes,"* Flexi-Mounted Cab, Uniweld all-steel cab construction, fully adjustable seat, all-round visibility with rear-corner windows,* extra-durable frames, specially designed brakes, and many other features that put Chevrolet trucks far ahead of the field. See them at your Chevrolet dealer's.

CHEVROLET MOTOR DIVISION, GENERAL MOTORS CORPORATION
DETROIT 2, MICHIGAN

*Fresh air heating and ventilating system and rear corner windows optional at extra cost.

### *NEW* CHEVROLET 4-SPEED SYNCHRO-MESH TRUCK TRANSMISSION

This Chevrolet-developed Synchro-Mesh transmission in heavy-duty models provides new ease and efficiency.

### *NEW* CHEVROLET ADVANCE-DESIGN GEARSHIFT CONTROL

Steering-column gear shift (on models having 3-speed transmission) gives new freedom to the driver, leaves cab floor unobstructed.

### *NEW* FOOT-OPERATED PARKING BRAKE

Chevrolet's foot-operated parking brake (on models with 3-speed transmission) provides new clear floor area.

### *NEW* IMPROVED CHEVROLET VALVE-IN-HEAD ENGINE

The world's most economical engine for its size. Has greater durability and operating efficiency.

### *NEW* MULTIPLE-FEATURE DEVELOPMENTS

New splined rear-axle shaft attachment to wheel hubs in heavy-duty models.... Heavier springs . . . New propeller shaft bearing-support and seal design.

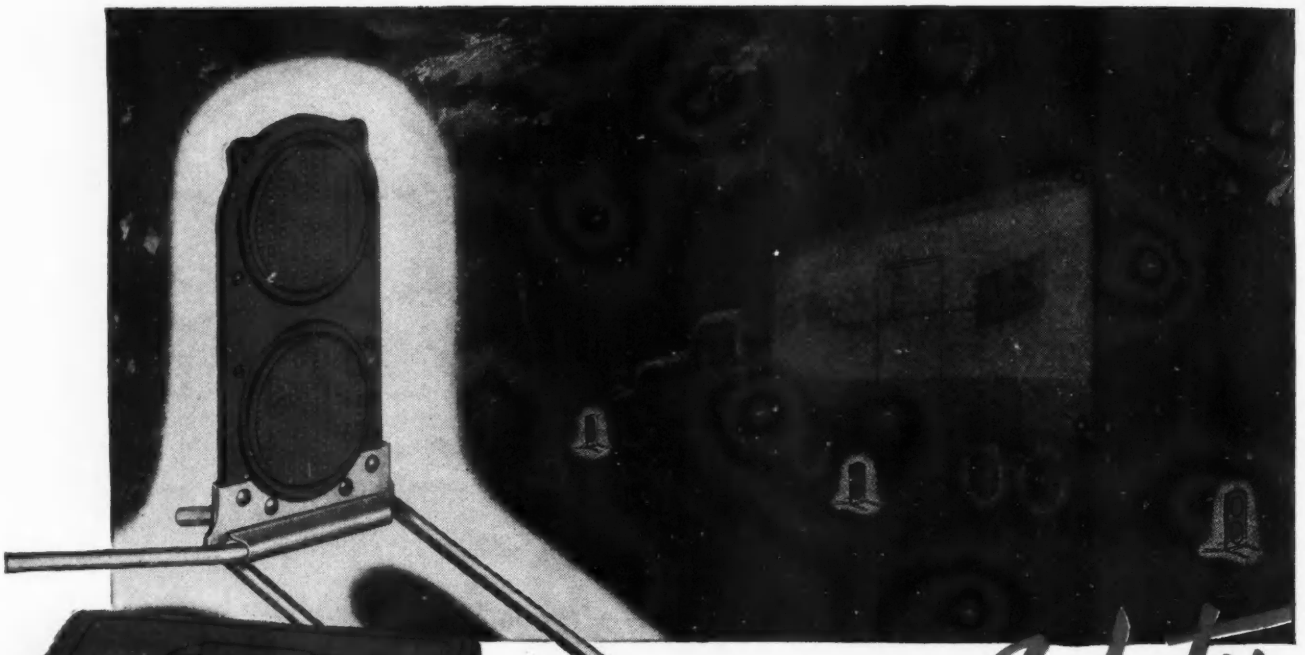
# Your Electrical Service Department

## 7668-A COMPLETE WIRING KIT

**For Every Wiring Need**

Battery Cables • Spark Plug Wires
Lighting Wires
Cordlites, Extension Cords and Tools

**Belden** *Automotive* **WIRE**



# Roadside Safety

## WITHOUT FUEL OR FIRE!

# DIETZ REFLECTOR FLARES

**DIETZ Reflector Flares warn approaching traffic the instant you put them on the road . . . nothing to light, no switches, no fuel! Unbreakable Stimsonite lenses reflect a signal visible ½ mile in either direction. And sharp-edged metal legs really GRIP the road! This flare won't go out, fall over or skid in winds up to 50 miles per hour and more! DIETZ No. 323 REFLECTOR FLARE KIT contains 3 Reflector Flares in a compact kit box, measuring only 9⅛" x 5⅛" x 4½". DIETZ No. 323-F REFLECTOR FLARE KIT contains, in addition, 2 flags and 2 metal staffs. Fully tested by the Electrical Testing Laboratories . . . meet I.C.C. regulations. For safety's sake, order from your Jobber TODAY! R. E. Dietz Company, 60 Laight Street, New York 13, N. Y.**

## NEW DIETZ PRODUCTS

Fresh from the drawing boards of DIETZ designers! These new items, and many others, make DIETZ the most complete safety lighting equipment line. Safety is built into every one! Consult your Catalog . . . ask your Jobber for full details!

No. 820-DC Sealed Beam Headlight
No. 410-CA Sealed Beam Foglight
No. 310 Back-Up Light
No. 757 "Volunteer" Fire Extinguisher
No. 80-C Streamlined Clearance & Marker Light
No. 64-5C Extension Mirror

## TWO FREE CATALOGS!

**NO. 48**—the complete DIETZ lighting equipment Catalog!

**NO. 48-A**—the complete DIETZ summary of all I.C.C. and State Lighting Equipment Regulations. It's up to the minute!

SEND FOR BOTH TODAY!

OVER A CENTURY OF *Safety* LIGHTING **DIETZ**

HERE'S **UTMOST RELIABILITY**

## IN SPEEDOMETER CABLES & CASINGS

No matter what makes of trucks or buses you operate, there are AC-engineered and AC-built Speedometer Cables and Casings for replacement service, packaged or in bulk. There are complete Cables and Cable-Casing Assemblies, ready to install on popular makes of vehicles. There are Cable Kits, containing a Cable with one end unfinished and necessary parts and tools. Or you can buy Cables and Casings in bulk, with proper fittings and tools.

Twenty-two years of "know-how"—twenty-two years of experience in meeting the factory-equipment requirements of automotive engineers—have given AC Cables and Casings *utmost reliability*. That's why more and more fleet owners insist upon them for all replacements.

Standardize on AC, the equipment that gives you *utmost reliability*.

### For Trouble-Free Lubrication

AC Lubricant ST-640 will not melt, congeal, absorb moisture, or discolor. Sold in handy 8-oz. tubes.

### The AC Trade-Mark Assures This Kind of Quality

**CABLES**—made of highest grade steel wires on special, AC-patented winding machines.

Heat-treated by AC-patented methods to assure highest quality, which means:

Quiet, steady performance of flexible shaft and speedometer. Smooth and free running around bends.

Steady driving torque of long flexible shaft; hence, steady pointer performance of speedometer.

High torque strength gives long life.

**CASINGS**—made of high grade, pre-formed, galvanized steel wire to give maximum flexibility and strength.

Rustproof and leakproof.

Wound on special, AC-patented winding machines.

Designed to give maximum protection to the cable.

All ferrules and coupling nuts are zinc-plated for rustproofing.

AC SPEEDOMETER { CABLES and CASINGS

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

# A NEW STANDARD IS BORN

## *In Air Compressors*

**THIS LABEL . . . new today . . . unfamiliar to you now . . . is destined to become an all important, universally recognized measure of value in automotive Air Compressors. Now you can buy Compressors with the same confidence and full knowledge of the facts as if they were tested in your own laboratory. You know you'll get as a minimum the specified volume of usable air in relation to the power consumed . . . you know your Compressor will be built for safe and efficient operation. For if it bears the PAEA label, it must equal or exceed the minimum standards of quality recorded by the National Bureau of Standards. Don't accept less in any Compressor than the standard which this guarantees. LOOK FOR IT BEFORE YOU BUY.**

**MEMBERS — MANUFACTURERS AND DISTRIBUTORS**

- American Brake Shoe Company, Kellogg Division
- Auto Compressor Co., The
- Brunner Manufacturing Co.
- Champion Pneumatic Machinery Company
- Curtis Pneumatic Machinery Division
- Dayton Air Compressor Company, The
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- Erie Meter Systems, Inc.
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- Lynch Manufacturing Corporation (PAR)
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- United States Air Compressor Co., The
- Wayne Pump Company, The
- Weaver Manufacturing Co.
- Westinghouse Air Brake Co.
- Worthington Pump & Machinery Corporation

**PNEUMATIC AUTOMOTIVE EQUIPMENT ASSN.**
1108 CLARK BUILDING PITTSBURGH 22, PENNSYLVANIA

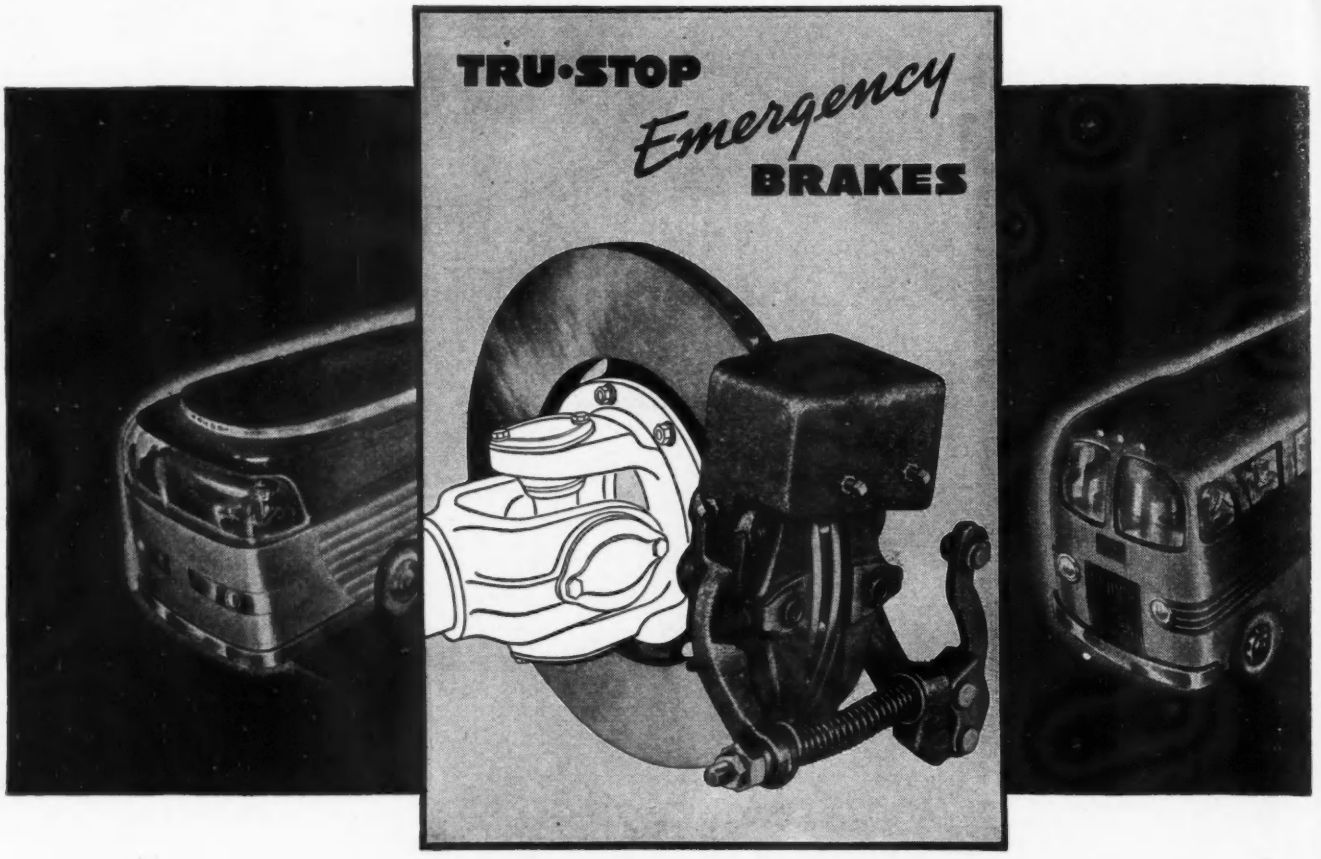
# Big New England Fleet "GOES BUDD"

"They're the most 'cost-conscious' outfit we know of," writes Sid Tinson of New England Wheel & Rim Co., Budd Wheel distributors, referring to the M & M Transportation Co. of Somerville, Mass., operators of 358 tractors, trailers and trucks. M & M's entire fleet is being changed over to Budd Wheels.

That involves a large investment, but, as Mr. Sam Brenner, their maintenance manager says: "From many years' experience we have learned that although the initial cost of a Budd Wheel may be higher than some other type, the investment quickly shows returns in greater safety, improved wheel performance and better tire mileage. We have found, too, that the wheels run truer and never require realignment, thereby accomplishing a considerable saving in maintenance expense."

The more fleet owners know about their costs the more certain they are to be customers for Budd Wheels. Get the story of Budd Wheel savings from the Budd distributor in your vicinity. He'll give you "case histories" of fleet owners operating your type of equipment on your kind of work. The Budd Company, Detroit.

*Budd Wheels are identified by this blue, red and gold label*




# IT IS UNSAFE TO HAVE A PARKING BRAKE ON A MODERN BUS OR TRUCK

**A parking brake that is only a parking brake is a hazard. Because some time a driver may use it to pinch hit for service brakes—and invite trouble. Be sure to specify TRU-STOP Emergency Brakes on new equipment.**

DETROIT, MICHIGAN—TRU-STOP Emergency Brakes are hand-operated. But they are real emergency brakes, engineered to decelerate, stop and hold the loaded vehicle—repeatedly—without danger of burning out.

Any brake's efficiency depends upon its ability to resist and throw off the intense, quick heat caused by the friction of braking. TRU-STOPS are designed to do just that.

TRU-STOPS are economical, too. Adjusting or relining them is so simple and easy that down-time is reduced to a minimum. On a per-mile or per-stop basis, TRU-STOPS cost considerably less thar ordinary drum-type brakes.

Include "TRU-STOP Emergency Brakes" in your specifications for new equipment.

ACCO

6-235 General Motors Bldg., Detroit 2 . 1119 Santa Fe Avenue, Los Angeles 21, California
Bridgeport, Conn.

AUTOMOTIVE AND AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

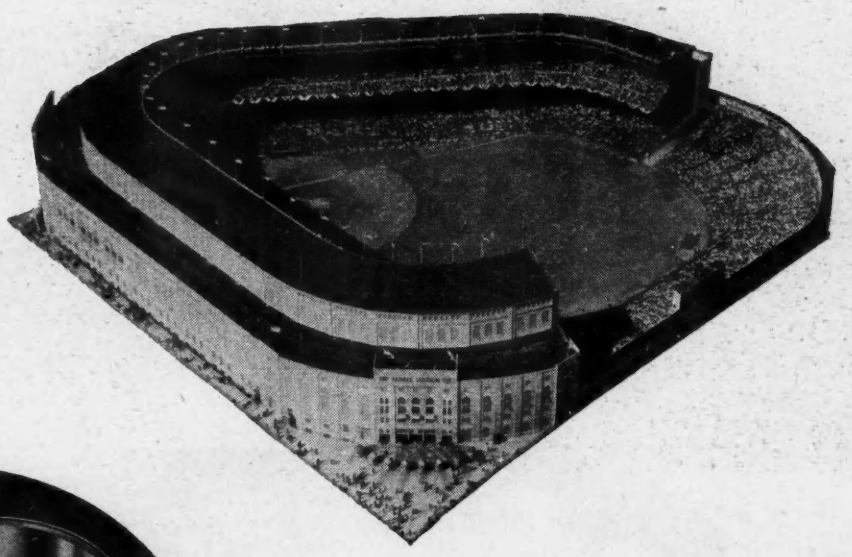
TRADE MARK

*In Business for Your Safety*

# name the money makers!

### *IN BASEBALL . . .*

**Last year, over 2,200,000 fans watched the World Champion New York Yankees —the biggest drawing card in baseball.**



### *IN AUTOMOTIVE PARTS . . .*

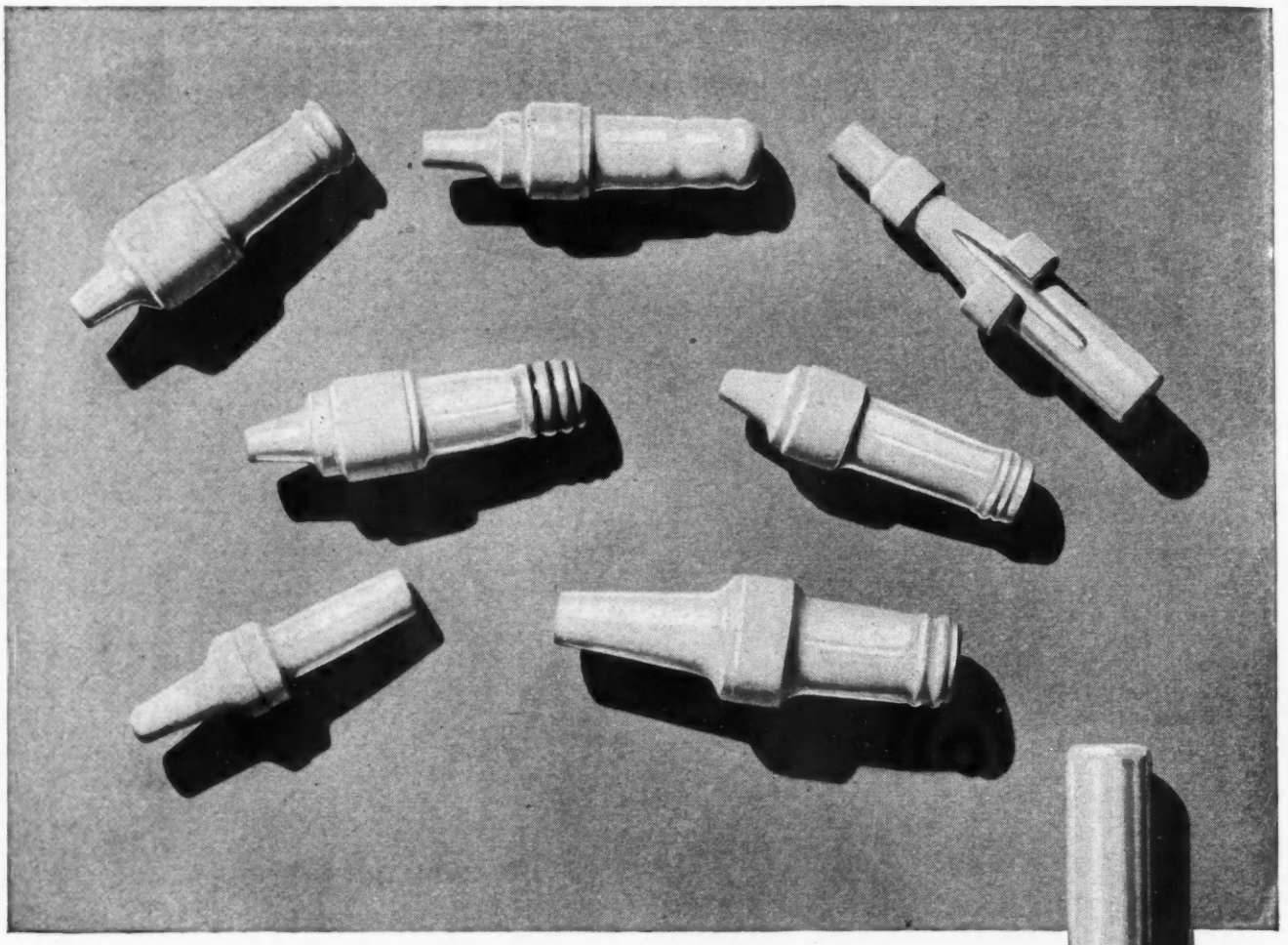
**Use the *finest* automotive parts and you get the kind of performance that makes money for you! The *finest* are Clawson & Bals Genuine "Ring-True". . . finest in design, materials and workmanship. They're available now in a *complete* line—engine bearings and many other products, each in a wide range of types and sizes. Ask your C & B Jobber about "Ring-True" products today! Clawson & Bals, Inc., 2508 S. Michigan Avenue, Chicago 16.**

## CLAWSON & BALS, INC.

**Really Complete Motor Bearing and Connecting Rod Service . . . Branches in Principal Cities**

**RING UP YOUR PROFITS WITH RING-TRUE PRODUCTS**

**TRUCK OWNERS!** **FLEET OWNERS!** **OPERATORS!**

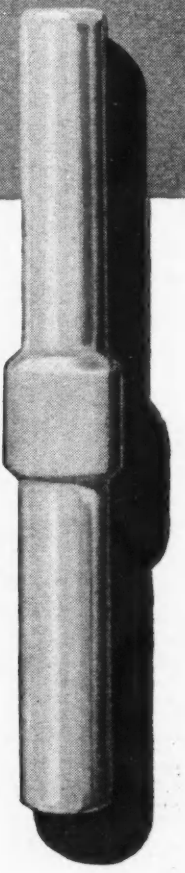


**and you MAINTENANCE SUPERINTENDENTS!**

**Make Sure That**

# FRENCHTOWN INSULATORS

**Are Used In The Spark Plugs You Buy!**

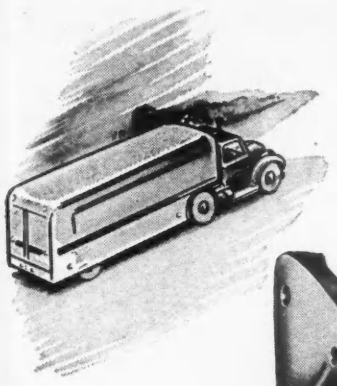


**We have specialized in the manufacture of insulators for over 30 years. Our entire organization is devoted solely to this product. FRENCHTOWN INSULATORS are used by more Spark Plug manufacturers than any other make. Why? Because we have the laboratory and engineering facilities, plus the experience, to make the finest insulators in America today. Take no chances. Every time you buy, say "I want plugs made with FRENCHTOWN INSULATORS."**

## FRENCHTOWN PORCELAIN CO.

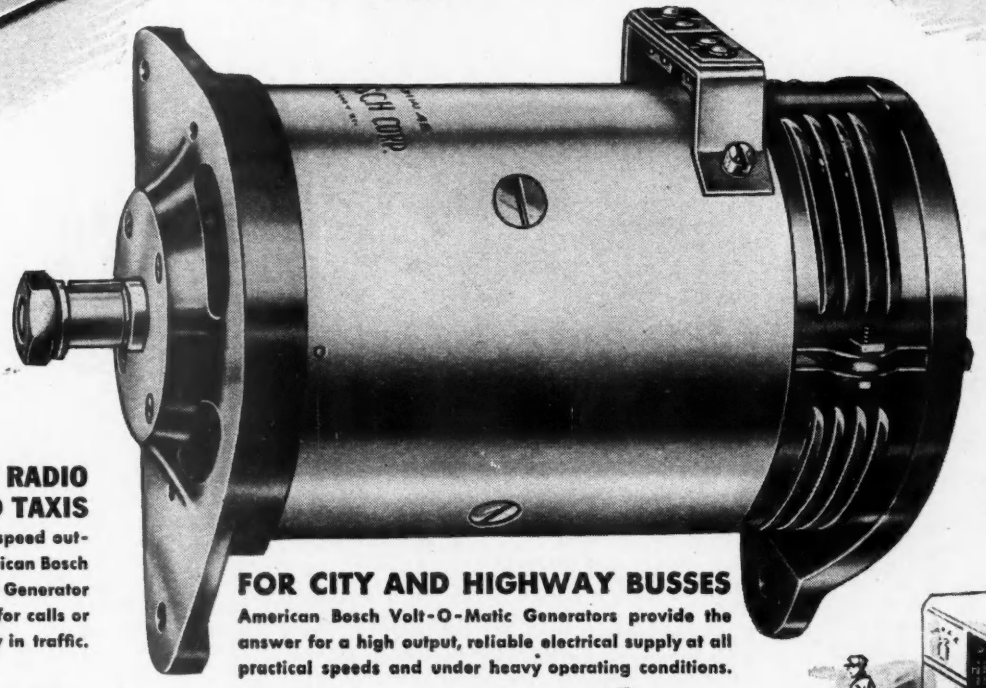
*Sales Office*
82 MUIRHEAD AVENUE, TRENTON 9, N. J.

*Factory*
FRENCHTOWN, N. J.



**EXTRA LIGHTS ON TRUCKS** and extended runs at night put a heavy strain on generators. The American Bosch Special Service Volt-O-Matics are designed and built to deliver dependable service under this type of punishing operation.

**ON POLICE CARS** American Bosch Special Service Generators provide adequate output for the efficient operation of radio receivers and transmitters, lights, sirens and accessories while standing by or prowling at reduced speeds.



**DOOR TO DOOR DELIVERY** means long idling periods and only short runs for charging between stops. And here again is another application where American Bosch Volt-O-Matic Generators are tops.

**TWO-WAY RADIO EQUIPPED TAXIS** need the low-speed output of an American Bosch Special Service Generator when waiting for calls or cruising slowly in traffic.

**FOR CITY AND HIGHWAY BUSSES** American Bosch Volt-O-Matic Generators provide the answer for a high output, reliable electrical supply at all practical speeds and under heavy operating conditions.

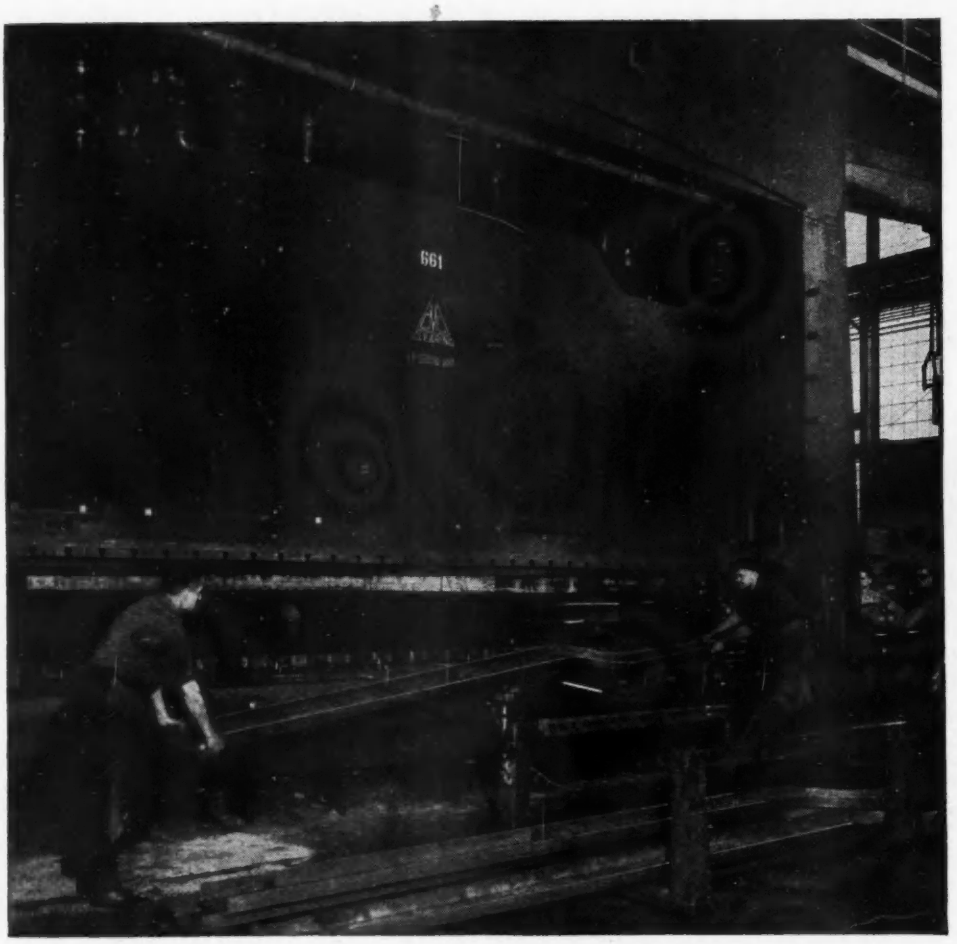
# AMERICAN BOSCH SPECIAL SERVICE GENERATORS

AMPLE OUTPUT even at LOW SPEEDS

Rugged American Bosch Special Service Volt-O-Matic Generators are skillfully engineered and precision-built for top performance. They cut in at speeds as low as 550 generator RPM and reach full output quickly—without the application of pulleys too small for proper belt traction. American Bosch Volt-O-Matics are available in both 6- and 12-volt capacities with fork, hinge, flange and cradle mountings for easy installation. Ask your supplier for complete details or write direct: American Bosch Corporation, Springfield 7, Massachusetts, U. S. A.

AMERICAN BOSCH

*Volt-o-matic Generators*



## FORMING A TRUCK OR TRAILER FRAME

# *The* **PARISH** *Way*

**The powerful press shown in the illustration used for forming PARISH Pressed Steel Heat-treated Frames, has a capacity of 3,000 tons and will form side rails from alloy steel ⅜" thick, 380" long.**

**This operation, plus the design and heat-treating is what makes PARISH Frames different — gives them that "spring-back" quality which is responsible for their long life and economical operation.**

**Because of the resilience of PARISH Heat-treated Frames, the parts attached to them are held in correct relation to each other in spite of the stresses and strains caused by rough roads and heavy loads, and "spring-back" immediately to their original position. They have a strength value 125% greater than frames made from commonly used steels.**

**Hold-ups due to maladjustment of parts caused by sprung frames can be very costly. When buying new trucks or replacing old frames, be sure to specify PARISH Heat-treated Frames—the frame with the "spring-back"—the "keel of the chassis."**

**PARISH**
Heat-Treated Frame

The Keel of the Chassis

**PRESSED STEEL HEAT-TREATED FRAMES FOR TRUCKS AND TRACTORS**

**PARISH PRESSED STEEL CO.** *Subsidiary of* **DANA CORP.**
**READING, PA.**

*Western Representative: F. Somers Peterson, 57 California St., San Francisco, Cal.*

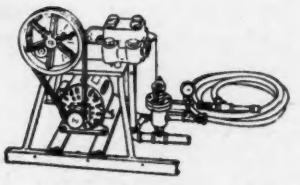
# CURTIS AIR COMPRESSORS

**Assure Long Life**
**Run Smoothly, Quietly**
**Assure Low Cost, Dependable Service**

## *Here's Why:*

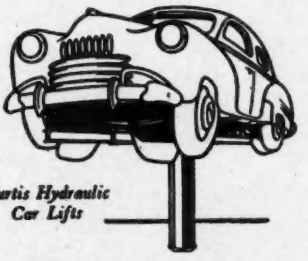
*Curtis Advantages include:*

1. Precision Construction Throughout
2. Timken Bearings
3. Self-Oiling
4. Positive Unloaded Starting
5. Enclosed Design—Slow Speed
6. Copper finned intercooler
7. High and low level oil gauge
8. Fan flywheel
9. Tank—deep penetrating welds



*Curtis Hydraulic Car Washers*

*Write for Bulletin C-6 on Curtis Air Compressors, Curtis Auto Lifts and Curtis Hydraulic Car Washers.*



*Curtis Hydraulic Car Lifts*

**CURTIS**

**PNEUMATIC MACHINERY DIVISION**
*of Curtis Manufacturing Company*
1970 Kienlen Avenue • • St. Louis 20, Missouri

*94 Years of Precision Manufacturing*

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Please send me your Literature Kit C-6, which includes bulletins on Curtis Air Compressors, Curtis Auto Lifts and Curtis Car Washers.

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# for TOP PERFORMANCE and ROCK-BOTTOM ECONOMY.....

## Standard

UTILITY
DUAL AXLE UNITS

## and Standard TRAILER AXLES

*Profit by These Cost-saving Advantages*

- NO WHEEL BOUNCE
- BETTER BRAKING
- LIGHTER WEIGHT
- EASIER ROLLING
- LESS MAINTENANCE

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## Standard Forge & Axle Company

INCORPORATED

MONTGOMERY 2, ALABAMA

Here it is spring, and still operating costs are way up high.

That's one reason we are glad to be able to report that the new Gulflube Motor Oil H.D. can help effectively to cut your operating costs for equipment in heavy-duty service.

For this new oil is a high-quality paraffin base, full detergent motor oil. When you use it, it will help you get cleaner engines and longer engine life, lower maintenance costs, and greater availability in both gasoline and diesel engines.

These are just a few of the many advantages the new Gulflube Motor Oil H.D. offers you.

A Gulf Automotive Engineer will gladly discuss with you the use of Gulflube Motor Oil H.D. Contact your nearest Gulf office. Gulf Oil Corporation—Gulf Refining Company. Division sales offices: New York, Boston, Philadelphia, Atlanta, New Orleans, Houston, Louisville, Toledo, Pittsburgh.

**SWITCH TO GULFLUBE MOTOR OIL H. D.**
**Gulf's New Detergent Motor Oil**
**for Diesel Engines and Gasoline Engines**
**in Extra Heavy-Duty Service.**

GULF

# MAKE YOUR ENGINES LAST 50% LONGER*
# Change to MARATHON V·E·P OIL

**50% longer engine life** than you'd get with ordinary oil! 50% more miles between overhauls! Those aren't just fancy claims. They're *facts* —*proved in scientific tests, proved in millions of miles of road travel for 11 straight years. Marathon V.E.P. Oil is the pioneer, heavy-duty oil. It's patented. It's different. Let it prove how it can save wear, cut operating costs *in your own fleet units,* gasoline or Diesel. Ask for a "Marathon Fleet Engineer" to bring you full facts.

**ONLY V.E.P. GIVES YOU ALL THESE IMPORTANT EXTRAS**

- **"Magnetic-like" film** that clings to vital engine parts, prevents damaging "dry" starts. Doesn't scatter at high temperatures. Protects bearings against corrosion.
- **Continuous cleaning action** that keeps valves and rings free, oil holes and lines open. Saves wear. Saves fuel.
- **More than 3 times** the film strength of ordinary oil to protect against heat, pressure, shock.

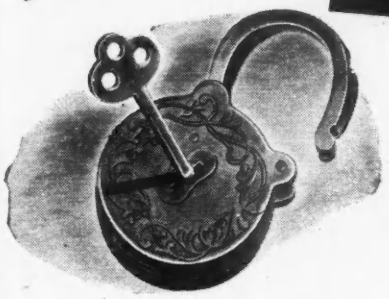
BEST IN THE LONG RUN
MARATHON

**A COMPLETE LINE OF AUTOMOTIVE OILS AND LUBRICANTS**

**THE OHIO OIL COMPANY**
*Producers of Petroleum since 1887*

**GENERAL OFFICES: FINDLAY, OHIO**
**District Offices: Robinson, Ill., Indianapolis, Ind., Louisville, Ky.**

# PROTECT PERFORMANCE —

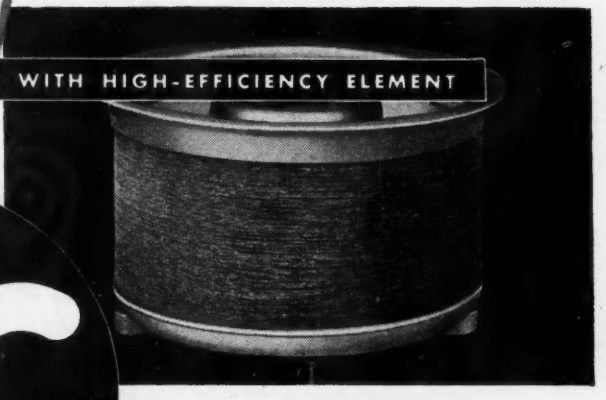


## WITH THIS HIGH-EFFICIENCY GASOLINE STRAINER

*Guard against road stoppages* and lost time by keeping your *gasoline clean* with this new, high-efficiency AC Gasoline Strainer. It traps water, lint, dust, and abrasives. The "Fiberite" Disc Type Element is 100% non-abrasive, acidproof, waterproof, and rustproof. It protects and prolongs the life of carburetor needle valves, valve seats, and jets. It assures a constant and full flow of clean gasoline, and so promotes easy starting as well as reliable performance.

The AC Gasoline Strainer is simple to install and offers your vehicles protection whose value is far beyond its low price. The "Fiberite" Element is separately packaged, and easily replaceable, and the price is very moderate. Ask your AC supplier about the new AC Gasoline Strainer with high-efficiency "Fiberite" Element.

**AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION**



AC GASOLINE STRAINER WITH HIGH-EFFICIENCY ELEMENT

AC *Gasoline* STRAINERS

★

# FOR BETTER ENGINE PERFORMANCE
# LOWER MAINTENANCE COSTS

**REPLACE** WITH THE PISTON RECOMMENDED BY MOST TRUCK & BUS ENGINEERS

Over 70% of all truck and bus manufacturers use Zollner Pistons as original equipment.

They know by experiment, research and testing that Zollner Pistons are designed and precison-made to give their motors top efficiency.

Naturally, Zollner Pistons are the first choice of fleet owners, too.

They know by experience that Zollner Pistons deliver the best in engine performance — at lowest maintenance cost.

The proof stands out on fleet records, everywhere.

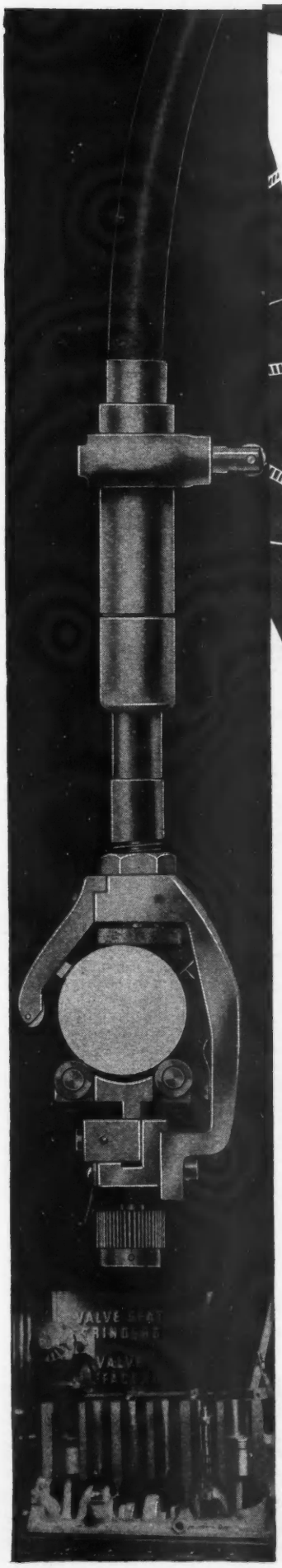
# ZOLLNER

ORIGINAL EQUIPMENT IN AMERICA'S FINEST MOTORS

**ZOLLNER**
**MACHINE WORKS**
**FT. WAYNE • IND.**

## PISTON EQUIPMENT

For Internal Combustion Engines
Both Gasoline and Diesel



WATERBURY

*Engine Rebuilding Equipment*

THE NEW PORTABLE

# CRANKSHAFT GRINDER

**WORKS FROM THE TOP — IN THE BLOCK**

**REACHES ALL CYLINDERS WITH EQUAL EASE**

A new portable crankshaft grinder that will make you money right from the start: Handles most "in-line" engines; no heavy work under chassis, simply jack up car enough to remove oil pan; sets up quickly; simple to adjust, easy to operate; crankshaft rotated through fan belt pulley; wheel cut easily and accurately regulated; diamond dresser, extra grinding wheels, bronze shoes and handy carrying cases provided.

Write now for completely descriptive folder that gives all the details about this time-saving, money-making engine rebuilding tool.

**AS DEMONSTRATED AT THE A. S. I. SHOW**

## WATERBURY TOOL

**Division of Vickers, Incorporated**

**704 East Aurora Street, Waterbury 91, Connecticut, U. S. A.**

Manufacturers of Waterbury-Hall Valve Equipment • Also Piston Turning & Grinding Machines • Cylinder Boring & Grinding Machines • Con-Rod Boring Machines • Con-Rod Rebabbitting Jigs • Line Boring Machines

# STOP! Don't Take Chances!

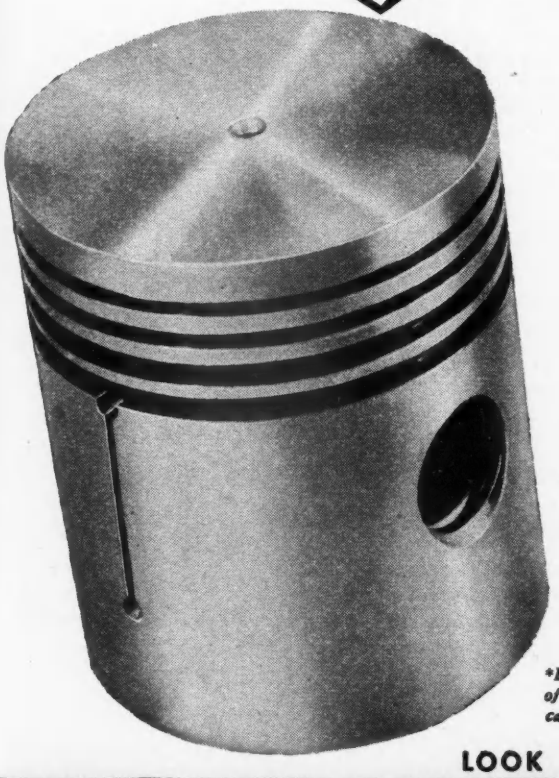
## Reline with INLITE
## The One-Quality Brake Lining

When you specify Inlite brake linings you are *sure* of General Motors quality. You are certain of top-grade lining . . . because there is only *one Inlite* line. There are no second or third grades. And you know *every* segment of Inlite brake linings is made uniformly under exacting laboratory control. Also, you know that there is an Inlite matched set which is specially designed for your particular brake and vehicle. That means you can *count* on miles more of dependable, safe brake service.

1. One quality line. No second or third grades!
2. General Motors quality!
3. Sets matched to give correct friction for brake and vehicle!
4. More miles of brake service for your dollar!

**INLAND MANUFACTURING DIVISION**
*General Motors Corporation* • **DAYTON, OHIO**

# where LO·EX pansion really counts!



You get smooth, effortless power and economical operation with LO-EX* PISTONS by OHIO. You're *always sure* of close clearances . . . LO-EX *for* low expansion! That translates itself into increased power with less fuel and oil . . . trouble-free performance. LO-EX PISTONS are lightweight, too . . . made of Alcoa Aluminum . . . minimum burden on bearings . . . and fast heat distribution. When you replace . . . replace with LO-EX PISTONS by OHIO. Ask for them *by name.*

*LO-EX and ALCOA are registered trade marks of Aluminum Company of America, makers of castings for genuine LO-EX PISTONS.

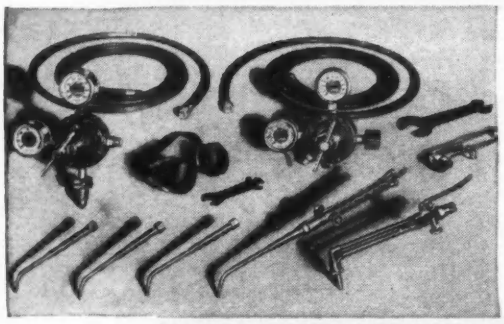
LOOK FOR THE TRADE MARK

The OHIO PISTON Company
CLEVELAND, OHIO

# There's a PUROX Outfit

## to Fit Your Welding and Cutting Jobs

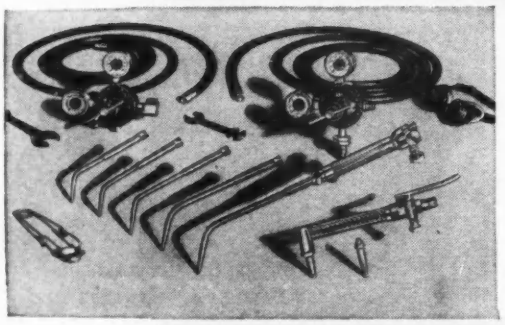
### LIGHT WELDING AND CUTTING OUTFIT No. 33



***Light-Range.*** Small blowpipe . . . easy to handle. A favorite outfit for production of aircraft and small parts, and for auto body and general sheet metal work. Standard outfit welds metal up to 3/16 in. thick; cuts 3/4 in. of steel. Four extra heads extend welding range upward to 7/16 inch.

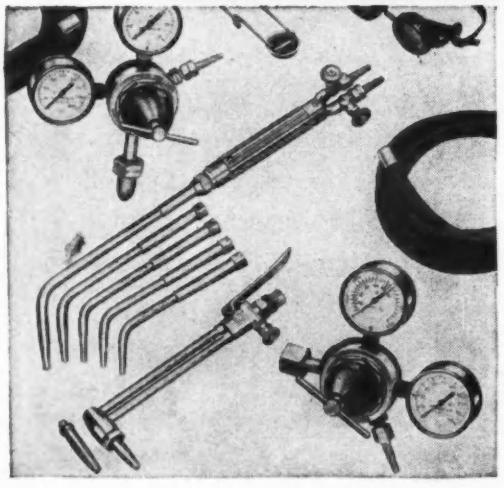
**$90.50**

### MEDIUM WELDING AND CUTTING OUTFIT No. 34



***Medium-Range.*** Preferred by fleet owners, garages, truckers, and repair shops for general automobile repairs. Ideal for medium-range welding, heating, and cutting in the small industrial plant and on the farm. Welds up to 7/16 in.; cuts up to 3/4 inch. One extra head extends welding range to 3/4 inch. **$109.50**

### GENERAL WELDING AND CUTTING OUTFIT No. 35



***All-Purpose.*** First choice of job welding shops, plant maintenance departments, and operators who *know* welding and cutting equipment. Welds up to 5/8 in.; cuts 1/2 in. steel. Four extra head sizes and 2 additional nozzles available to weld plate up to 1 in. and thicker and cut up to 4 in. of steel. **$131.50**

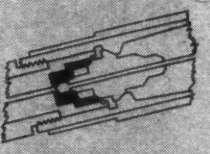
PUROX outfits are products of The Linde Air Products Company, a Unit of Union Carbide and Carbon Corporation. In Canada: Dominion Oxygen Company, Limited.

## Order from your PUROX Trade-Mark Jobber

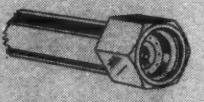
If you don't know your jobber we will send you his name and a descriptive folder of PUROX apparatus if you will write to: The Linde Air Products Company, Room 308, 30 E. 42nd Street, New York 17, N. Y., Mr. C. B. Cox.

The term "Purox" is a registered trade-mark of Union Carbide and Carbon Corporation.

### A FEW PUROX Trade-Mark FEATURES

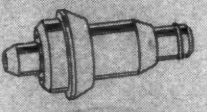


**INDIVIDUAL MIXER**
in each head assures correct gas mixture

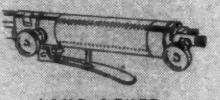


**RECESSED SEATS**
prevent damage—increase life of heads

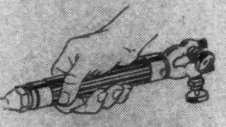
**SWAGED 1-PIECE TIPS**
of hard-drawn copper withstand hard use



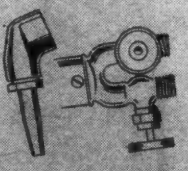
**WEAR-RESISTING PLUG**
prolongs life of head and body seats



**LONG LEVER**
increases cutting-oxygen control



**PROPER BALANCE**
for easy handling—less fatigue



**PRESSURE FORGED PARTS**
stand up in service

# Ask your Drivers about THIS Hazard

Any cracks or discolorations in the glass in your fleet increase driving hazards. In the interest of safety, make inspection of windshields and windows a regular step in your routine maintenance check.

**For Clearer Vision,** replace cracked or discolored glass with L·O·F Hi-Test Safety *Plate* Glass. This glass is made of two panes of L·O·F *Plate* Glass, ground and polished for maximum freedom from distortion, and laminated with a sheet of clear, tough plastic.

**To Be Sure** you get this top-quality glass, look for the stenciled identification "L·O·F Hi-Test Safety Plate" on the glass in new equipment or for replacement in your fleet.

If you do replacement work in your own shops, your men will appreciate having a copy of our "Tips" book—a manual on cutting and installing safety glass. Write to Libbey·Owens·Ford Glass Company, 7248 Nicholas Building, Toledo 3, Ohio.

WHEREVER VISION IS IMPORTANT USE L·O·F *Polished Plate* GLASS

L O F **LIBBEY·OWENS·FORD** *a Great Name in* **GLASS**

*Rear View Mirrors*
*E-Z-I Rear View Mirrors*
*Visor Vanity Mirrors*
LIBERTY MIRROR DIVISION
Brackenridge, Pa.

# Double-Duty PERFORMANCE
## FOR APPLIANCE DEALERS

**THE STANDARD OF THE UTILITY INDUSTRY**

**American D·P·L**
**LINE CONSTRUCTION BODY**

American makes the DPL and DT Line Construction Body in four basic lengths . . . to take care of different requirements. And it explains why American will engineer standard bodies for special utility requirements . . . also why American offers a choice of more than 60 optional equipment items.

American's Light Utility Body will save you money on transportation equipment. When the 4460 leaves your headquarters it is fully stocked to service an area with both merchandise deliveries and on-the-job repairs . . . no need for an equipped service car, plus a delivery truck . . . *the 4460 does double-duty for you.* You can use every inch of the bed for merchandise. Three body lengths are available—75″, 90″, 104″ for use on 1/2, 3/4, 1, and 1-1/2 ton chassis. Generous side compartments, efficiently equipped with shelves and drawers provide adequate supply and tool space.

### *Flexible* Arrangement for Your Business

Each side box has a vertical compartment at the front and a single horizontal compartment above the wheel housing. The vertical compartments are equipped with removable and adjustable shelves.

**THE *American* COACH & BODY COMPANY**

**9503 WOODLAND AVE., CLEVELAND 4, OHIO**

**SALES and ASSEMBLY** THE AMERICAN COACH AND BODY CO., CALIF. DIV., 432 FIFTH ST., OAKLAND 7, CALIF.
BAKER EQUIPMENT ENGINEERING CO., SUMMIT & NORFOLK STS., RICHMOND 11, VA.
**OFFICES** 350 MADISON AVE., NEW YORK 17, N. Y. INSURANCE EXCHANGE BLDG., DES MOINES 9, IOWA

ACB and

# ANNOUNCING

# New AC FLEXIBLE HOSE

**GASOLINE**

**OIL FILTER**

**OIL GAUGE**

**GREASE**

**VACUUM**

***with*** **MAKE-UP KIT FOR MAKING YOUR OWN ASSEMBLIES FOR ANY INSTALLATION REQUIREMENT**

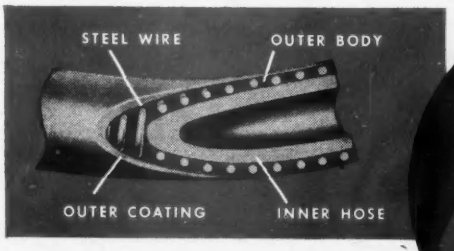
## COMPETITIVELY PRICED—HIGHEST QUALITY

Here is the ideal set-up for replacing your flexible lines—and saving money and time. This new AC Flexible Hose Make-up Kit enables you to assemble leakproof lines, any length, for any purpose, immediately, and without a large investment. The attachable fittings are of unique design which permits you to use them again and again.

The flexible hose comes in one diameter only,—adequate for all service—simplifying your stock problem.

Check your flexible lines regularly for wear, burning, chafing, cracking, checking, kinks, and leaks. Replace with quickly assembled AC Flexible Lines—and keep your vehicles on the move.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION




***AC Lines Give You This Quality***

**Unaffected by aromatic and alcohol blended fuels, oil, water, heat, cold, vibration, kinking, and twisting.**

## NOW IN STOCK

**Contact your AC Wholesaler for prices and delivery**

AC Flexible Lines also available in "Tailor-Made" form, to fit most popular cars and trucks. Packaged, 5 to a box.

AC Flexible LINES

BLAST *?#!+2 THIS JERKER CLUTCH!

There go my teeth again!

# Hey! Try My Clutch

## It's a LIPE

## MULTI-LEVER HEAVY DUTY Clutch

**SMOOTH! EASY!**

**Everything Under Control**

Why don't you ask the boss for a rig equipped with a Lipe clutch? There are lots of reasons for asking. Write Lipe and they will tell you.

Engage your fifth wheel without shock to trailer or cargo by using the Lipe multi-lever clutch having the non-shock engaging feature. It's kind to your transmission gearing, differential, and rear axles, too.

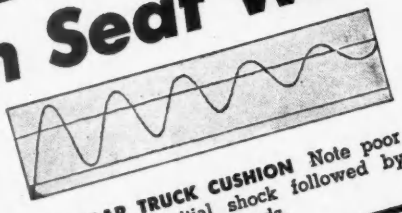
LIPE ROLLWAY

Lipe-ROLLWAY CORPORATION SYRACUSE 1, N. Y.

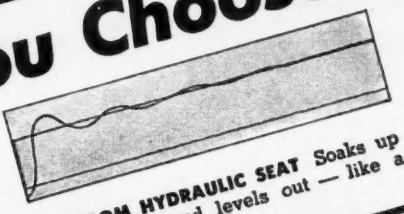
Cable Address: LIPEGEAR

# If You Drove Your Own Truck

## Which Seat Would You Choose?



**REGULAR TRUCK CUSHION** Note poor take-up of initial shock followed by equally rough rebounds.



**BOSTROM HYDRAULIC SEAT** Soaks up initial shock and levels out — like a passenger car ride.

MULTIPLY the first ride-graph* above 50,000 times and you have a picture of your drivers' average day. No wonder schedules lag and safety wanes! No wonder your equipment takes abuse! Compare the ride of the Bostrom seat and you'll clearly see its economy in reducing fatigue and driver ills alone. And here are additional savings: The Bostrom seat outlasts ordinary cushions — practically eliminates seat repair bills.

Ask your dealer for a demonstration and further facts about the Bostrom Model 47 Hydraulic Seat. For free folder "12 Eye Openers Concerning Truck Seats" write:

***Bostrom Manufacturing Company***
***133 West Oregon St., Milwaukee 4, Wisconsin***

- Hydraulic shock absorber takes all the jolts.
- Durable steel frame.
- Fore and aft adjustment.
- All moving parts of suspension mechanism move in rubber.
- No oiling.
- No coil springs. 3" bonded rubber pad lasts a lifetime.
- Seat coverings can be replaced in 10 minutes.

*Actual ride-graph films from among thousands taken in Bostrom Seat Research. They show comparative effect of a single road shock under identical conditions.

**BOSTROM**

***Bostrom Hydraulic Seats now standard or optional equipment on the following trucks: GMC, Diamond T, Federal, Hendrickson, Peterbuilt, Walter, Ward La France, FWD, Oshkosh, and Coleman. Be sure to specify Bostrom Model 47 Seats on your new trucks.***

JOIN THE FLEETS

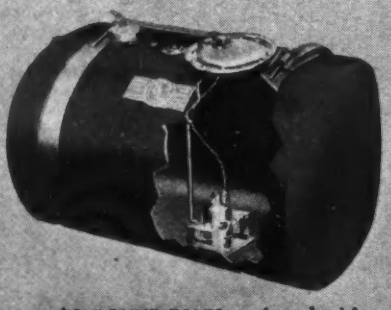
# Prior

**PRIOR OB-ROUND TANKS** are modern, compact and hug the frame closely, staying well inside the tires. They are lighter in weight per gallon, reducing operating costs. All OB-Round Sets (and pairs) furnished with gauge as standard equipment.

**YOU CAN REALLY "GO PLACES"** when your trucks are equipped with Prior Safety Tanks. You can fill up with gas at home and take advantage of bulk prices. The savings over a year are astounding. Greater capacity cuts down the number of fuel stops, and this shortens trip time, too.

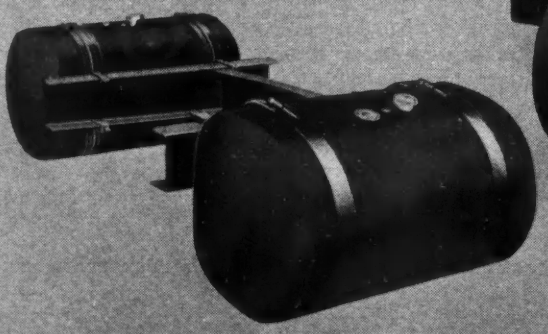
But savings are only *one* of the many Prior advantages, especially if you have Prior OB-Round Tanks. Less weight per gallon and simpler-than-ever installation are more good solid reasons in favor of Prior. Underwriters' Laboratories listed, of course. You can get OB-Round Tanks in sets, pairs and singles.

PATENTED AND OTHER PATENTS PENDING.



**OB-ROUND TANK** equipped with Carter Electric Pusher Pump, which eliminates *vapor lock* and insures easier starting.

**PAIR OF OB-ROUND TANKS,** showing how they hug the frame.



**END-FILL OB-ROUND TANK** with adjustable filler neck for underbody mounting on any panel, stake, or a dump body truck.

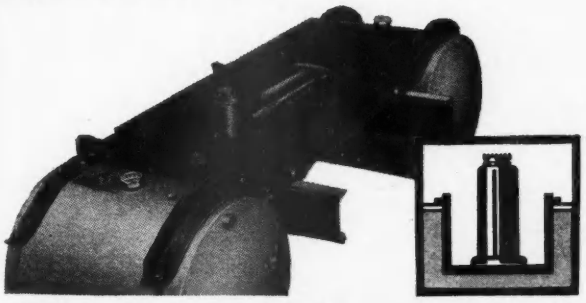
# THAT ARE "GOING PLACES" WITH

# Safety Tanks

Prior Safety Tanks, either OB-Round or Cylindrical, are built to give long, satisfactory service under heavy duty. They are pilfer-proof and safety fused to guard against explosion in case of fire. A ball check in the vented filler cap prevents leakage of fuel should the tank be overturned.

The popular Prior Sets are designed and built especially for truck tractors. They are safe, dependable, convenient and attractive. As explained below, they make up a unit that is much *more* than just two tanks.

There is a Prior Set, Pair or Single that will fit your needs exactly. Use the coupon to get complete information and don't forget to ask for the name of your nearest distributor.



**ALL PRIOR SETS** contain a convenient, roomy tool chest with a jack well which keeps the hydraulic jack upright. The 4-way non-skid cover (standard equipment with Prior) can be locked securely and serves as a cat-walk for the operator.

## 20 GOOD REASONS FOR INSTALLING PRIOR SAFETY TANKS

1. Easier Mounting.
2. 12 Gauge Steel.
3. Electrically Lap Welded.
4. Pickled and Oiled, Rust Resistant.
5. Quick Filling.
6. Fill Vent to prevent overflow from expansion.
7. Ball Check and Seat in Cap to prevent leakage in event of truck upset.
8. Pilfer-Proof Baffle.
9. Forged Brass Filler Cap. Swiveled and Chained.
10. Safety Flame Fuse Plug—Replaceable.
11. ½" Drain Plug in bottom.
12. Fully Dished Heads.
13. 5/16" Fuel Line with Pick-up close to bottom.
14. Brace for Pick-up Line, Welded in place.
15. Anchor for Pick-up Line, Welded in place.
16. Pressure Tested for Safety.
17. Listed under Underwriters' Laboratories, Inc. Re-Examination Service.
18. Rust Proof Prime coated.
19. Guaranteed Against defects in materials and workmanship.
20. Guarded Fuel Line Outlet.

## PRIOR PRODUCTS, Inc.

BOX 349, MIDDLETOWN, OHIO • 4828 RACELL, DALLAS 10, TEXAS

**CYLINDRICAL SET** with tool chest and jack well, made in two diameters and six capacities.

**PAIR OF CYLINDRICAL TANKS.** (Catwalk optional.)

*Mail Today*
TO NEAREST ADDRESS

**PRIOR PRODUCTS, Inc.**
**Box 349, Middletown, Ohio**
**4828 Racell, Dallas 10, Texas**

Please send me complete information on Prior Safety Tanks and the name of your nearest distributor.

NAME_____

STREET_____

CITY_____

STATE_____

# Designed *for the* Job!

**There's a Delco Shock Absorber designed to suit the particular needs of every passenger car, commercial car, truck and bus.**

Designers and manufacturers look confidently to Delco for the solution of their shock absorber problem. They know that Delco has constantly pioneered improvements in shock absorbers . . . that Delco has the required engineering skill and experience . . . that Delco has ample facilities for producing in large quantities . . . that Delco has the largest controlled service distributing organization. And Delco alone offers a complete line of shock absorbers—direct acting and Knee Action, single acting and double acting.

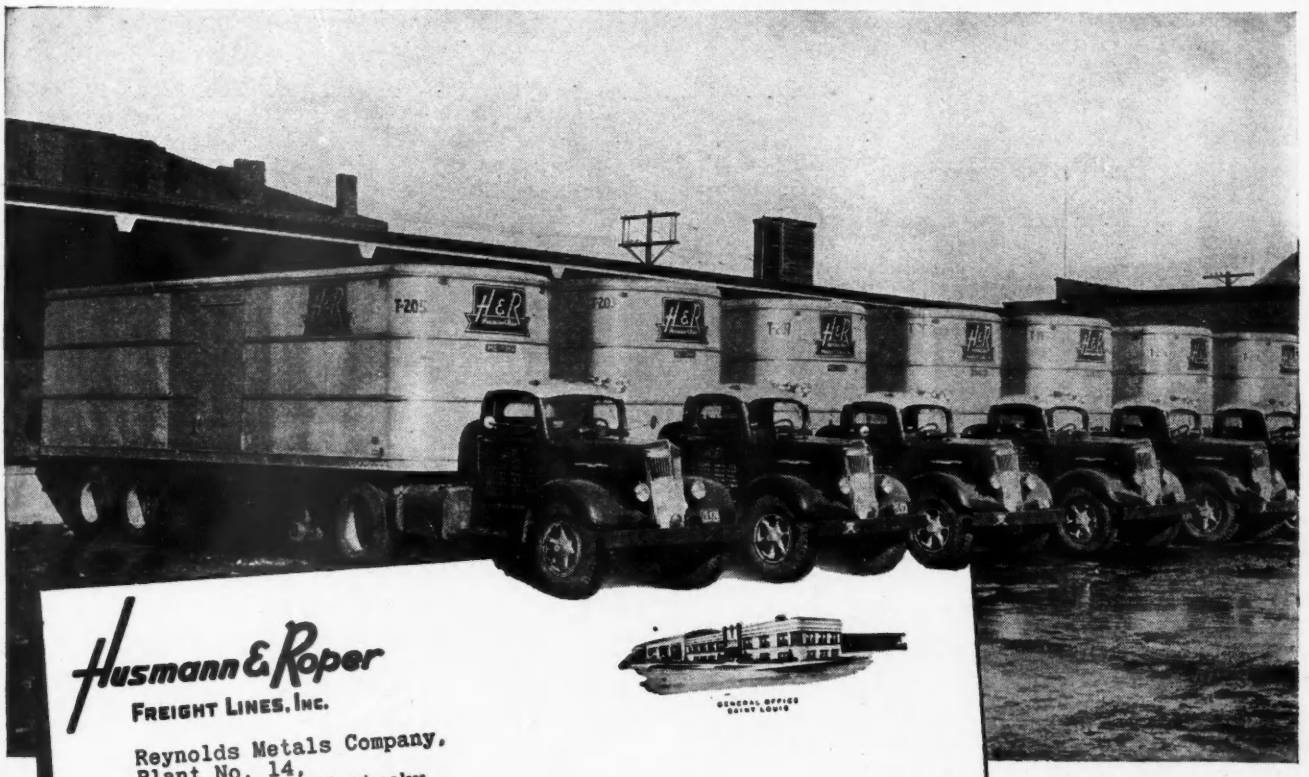
**DELCO PRODUCTS DIVISION**
**GENERAL MOTORS CORPORATION**
**DAYTON, OHIO**

UNITED SERVICE MOTORS

**DELCO SHOCK ABSORBERS**
**A UNITED MOTORS LINE**
**Available Everywhere Through**
**UNITED MOTORS DISTRIBUTORS**

# Delco *HYDRAULIC SHOCK ABSORBERS*

# "3900 LBS. MORE PAYLOAD ON EACH TRIP!"



**Husmann & Roper**
FREIGHT LINES, INC.



Reynolds Metals Company,
Plant No. 14,
Louisville 1, Kentucky

Gentlemen:

After using several Reynolds experimental demonstrators for a considerable period of time, we found these trailers very much to our liking and on June 6, 1947, purchased six new thirty-foot tandem units through the Baker Trailer and Body Company of this city, your distributor for this area.

We found that, with spare tire and rim, fully equipped and ready for the highway, this trailer weighs 8,400 lbs. With this low weight, we found we can haul from 1,400 lbs. to 3,900 lbs. more pay load on each trip than on our other tandem trailers, with no added maintenance cost.

Obviously, this remarkable gain in pay load is a big part of the answer to our problem of reducing operating costs in these times of greatly increased expenses.

Because of the record performance of these trailers in our fleet, we have purchased an additional six and have adopted a program of purchase to replace the remaining heavy trailers in our fleet, with the Reynolds all-aluminum trailer.

Sincerely yours,
HUSMANN & ROPER FREIGHT LINES. Inc.

*H. H. Husmann*

W. H. Husmann,
President

WHH/jwt.

Trailers assembled and sold by Baker Trailer & Body Co., St. Louis distributor. For name of distributor nearest you, write Reynolds Metals Company, Truck & Trailer Division, 2000 So. 9th St., Louisville 1, Ky.

REYNOLDS METALS

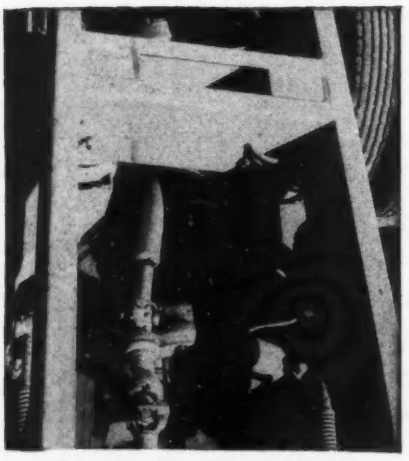
Reynold Pioneering Made Aluminum Competitive... *take advantage of it!*

## REYNOLDS ALUMINUM TRAILER BODIES

"THE LIGHTWEIGHT CHAMPIONS OF THE ROAD!"

# *Announcing* Another
## *The* Three Axle
# SPANGLER

**A three-axled, dual-engined 10-tired truck built of genuine FORD PARTS**



This view shows how each engine drives one axle. Note shaft to rear axle riding on twin center bearings.

### ●SAFETY

The safety features of the SPANGLER DUAL-TRUCK are at once apparent. Its 10 tires provide extraordinary footing as well as flotation and traction. Since the tires on the driving wheels are all duals, the vehicle is virtually immune from blow-outs and in most cases could proceed despite one or more tire failures.

### ●MAINTENANCE

Servicing the SPANGLER DUAL-TRUCK is very simple, because most of the parts are standard Ford parts. Any Ford Service Station can do the job and has the parts in case any have to be replaced . . . and almost every village has a Ford Service Station.

### ●ELIMINATION OF ROAD FAILURES

Having dual engines and drives, the possibility of both being out at the same time is rather remote. As long as one engine is operating you have enough power to bring you in. Each engine drives one rear axle entirely independent of the other.

**D. H. SPANGLER ENGINEERING**

# Revolutionary Vehicle!

# DUAL-TRUCK

**8450 lbs. stripped**

●

**8920 lbs. including 3-man cab, 63 gallons of gas, 5th wheel and all connections ready to hook on the trailer**

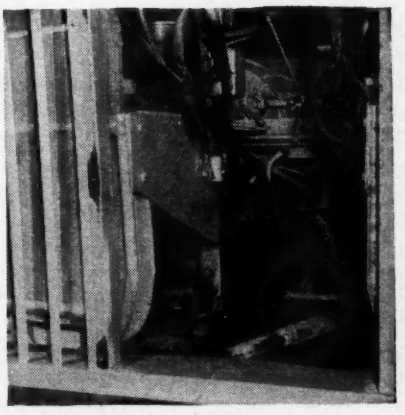
●

## ECONOMY OF OPERATION

The SPANGLER DUAL-TRUCK has been given the most rigorous tests. One of these was a two-weeks' trial hauling coal over an extremely rugged route from the anthracite region above Hazelton to Princeton, N. J. The round trips were 270 miles long, the gross load averaging better than 47,000 lbs. The gas consumption on these trips was 4 miles per gallon loaded, and 5½ miles light, pulling a pay load of 16 tons per trip. The saving of time on each round trip was three hours, due to the hill-climbing ability of the SPANGLER DUAL-TRUCK.

●

Fleet operators who want to secure the maximum of safety for their drivers and lower their maintenance and operating costs will want to know more about the SPANGLER DUAL-TRUCK. In design and engineering it meets the strictest standards. Your request will bring more information about this revolutionary truck by return mail.

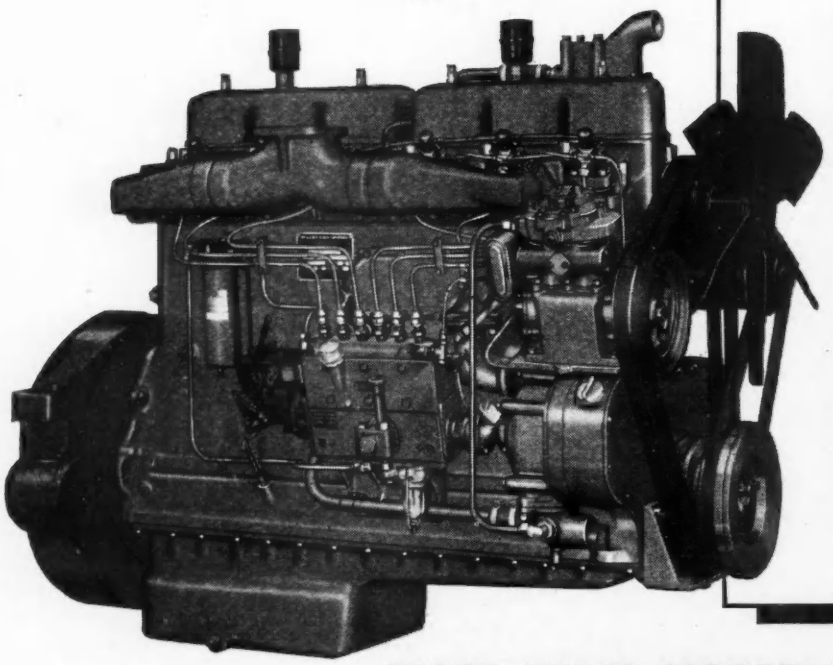


This view, looking through open front hatch gives some idea of the accessibility to dual Ford engines.

**& SALES CO., Hamburg, Penna.**

# WAUKESHA *Diesel* ENGINE

## MODEL 148-DK



| | |
|---|---|
| Bore x Stroke | 5¼ x 6 |
| Number of Cylinders | 6 |
| Displacement, cu. in. | 779 |
| Valve Dia., clear, intake | 2¼ |
| Valve Dia., clear, exhaust | 1 13/16 |
| Front Main Brg., dia. x lgth. | 4¼ x 2⅛ |
| Center Main Brg., dia. x lgth. | 4¼ x 3¼ |
| Rear Main Brg., dia. x lgth. | 4¼ x 3 11/16 |
| Inter. Brgs. (4), dia. x lgth. | 4¼ x 2⅛ |
| Conn. Rod. Brg., dia. x lgth. | 3⅜ x 2¼ |
| Conn. Rod Lgth. c. to c. | 11⅜ |
| Piston Pin, floating, dia. x lgth. | 1⅞ x 4½ |
| Comp. Rings (2), size | ⅛ |
| Scraper Rings (2), size | ⅛ |
| Oil Control Rings (2), size | ¼ |
| Timing Gears, face width | 1¼ |
| Flywheel Hsg., S.A.E. No. | 0, 1, 2 |
| Weight Approx. | 2420 lbs. |

## CHECK THESE MODERN FEATURES

***Cylinder Head***—Twin heads, interchangeable both front and rear, carry valves and valve gear. Stellite valve seat inserts, both intake and exhaust.

***Crankcase***—Very deep, rigid, combined crankcase and cylinder block frame with extra heavy upper and lower decks to form seat for removable wet cylinder sleeves. Cooling-water directional baffles add to rigidity.

***Cylinders***—Removable, wet-sleeve cylinders of Waukesha alloy iron hardened to 400 Brinell.

***Pistons***—Heavy-duty aluminum alloy with circulating oil cooling the piston crown; six piston rings, four non-sticking, wedge-type and two straight-side oil control rings.

***Piston Pins***—Extra large, hollow, hardened and lapped finish. Full-floating.

***Crankshaft***—Seven-bearing, accurately balanced, heat-treated, and hardened drop forging. Crankpins and main bearings test to 600 Brinell. Massive cheeks connecting each throw give maximum stiffness while tortional vibration dampener at front end adds to smoothness of operation.

***Connecting Rods***—Rifle-drilled, heat-treated, drop-forged, I-beam section with deeply ribbed caps held by four heat-treated cap bolts. Large end bearing precision-type, steel-backed, copper-lead-babbitt, heavy-duty Diesel design. Hard bronze bushing in small end.

***Main Bearings***—Precision-type, steel-backed, copper-lead-babbitt; heavy duty Diesel design. Bearings are held in upper half of crankcase by heavy, ribbed caps and heat-treated bolts.

***Valves and Seats***—Both intake and exhaust valves are chrome silicon alloy. Both valve seats are Stellite inserts. Removable valve guides.

***Timing Gears***—Wide-faced, helical-cut timing gears. Mild steel and cast iron.

***Lubrication***—Full pressure lubrication by outside mounted positive gear-type pump. Oil forced through large drilled passages to each main, camshaft, connecting rod, piston pin, rocker arm, oil pump drive shaft bearing, and to idler gear stud and gears. Valve mechanism and cylinder walls are drenched by oil mist.

***Oil Cooler***—Large capacity oil cooler mounted on cylinder block with automatic by-pass. Adjustable pressure regulator is in series with the circulating system.

***Oil Filter***—Large capacity, waste-packed, continuous filter, shunt-connected.

***Cooling***—Large capacity double impeller water pump, gear-driven, is flange mounted on timing gear housing. Twin thermostats in water outlet housing.

***Injection System***—American Bosch coupling-driven injection pump with drawn steel injection lines to nozzles.

***Fuel Feed Pump***—Bosch primary pump mounted on injection pump.

***Fuel Filter***—Large-capacity, waste-type fuel oil filter protects injection system.

***Governor***—Injection pump governor is mounted on and driven by injection pump. It is fully enclosed, self-lubricating, and non-hunting.

***Starters***—Electric starting system, 24-volt, with glow plugs for vehicles; or gasoline starting engine for industrial service.

**WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.** • *New York, Tulsa, Los Angeles*

Abbotts
FINE DAIRY PRODUCTS
SINCE 1876

# 2 names of quality products linked by an SKF Distributor

One of America's largest independent milk distributors, and manufacturers of ice cream and cheese, Abbotts Dairies, Inc., Philadelphia, often utilize the services of an Authorized SKF Distributor. Abbotts know the right bearing in the right place is vital to the profitable operation of 500 Autocar, Chevrolet, Divco, Ford, International, Mack and White trucks. For these trucks collectively travel approximately 269,616 miles per month in Pennsylvania, New York, New Jersey, Delaware and Maryland with time out only for seasonal inspections.

Consulting your SKF Distributor is a good habit to cultivate. Take a short cut to economical fleet maintenance by having him stock the bearing types and sizes *you'll* need for 1948. 6408

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

SKF
BALL AND ROLLER
BEARINGS

# WHY: do the Nation's Biggest Users of Truck Belts Say:

# "This Belt gives 50% to

# BECAUSE: this is the ONE BELT Specially Engineered for TRUCKS and BUSES!

## Are YOU Still Using PASSENGER CAR BELTS on Your TRUCKS or BUSES?

You would certainly never think of using passenger car TIRES on your trucks or buses. Then why use passenger car BELTS?

You know, of course, that trucks and buses put heavier loads on belts exactly as they do on tires.

Isnt it natural, then, that a passenger car belt on a truck cannot possibly give you anything like the long, trouble-free service given by the belt that is *specially engineered* for trucks and buses—the Gates Truck Belt?

Look at the cross-section drawing of the Gates Truck Belt on the next page. Note the special cord section—embodying Rayon Cords of extremely high tenacity—the stronger, tougher, multiple-ply cover of more than double durability. Is it any wonder the biggest users of truck belts in the U. S. have found that this Gates Truck Belt gives them 50% to 80% longer wear?

*Even more important*—note in the statements of these experienced and practical operators, how much valuable *operating time* they are *saving* through fewer road failures and fewer delays for servicing.

Surely it is just as important to you as to them to keep *your* trucks and buses operating most efficiently and economically. If this is true, the wisest move you can make is to call your jobber right now and tell him to send you a supply of the one belt that is *specially engineered* for TRUCKS and Buses—the belt that is built with RAYON CORDS—the Gates TRUCK Belt.

## Read here the ACTUAL STATEMENTS of Big Truck Belt Users:

**Texas Motor Freight Lines** DALLAS, TEXAS

"After 4 years of buying belts for one of the largest fleets in the southwest, I am convinced that your special Truck Belt is by far the best on the American Market."

FAR THE BEST

**Hegeman Farms Corp.** RIDGEWOOD, N. Y.

"Frankly, we were skeptical of the high increased belt life claimed, but we have now experienced these savings in our own fleet. The percentage of road calls due to belt failures has been reduced to practically nil."

TESTS REMOVE ALL DOUBT

**Southern Bus Lines, Inc.** JACKSON, MISS.

"For the past 5 years, Gates Belts have given us much longer life, with reduced dollar cost, in addition to the time saved and road trouble eliminated."

NO MORE ROAD TROUBLE

**Walkup Drayage & Warehse. Co.** SAN FRANCISCO

"Gates Truck Belts are giving us 75% longer service than any used before—and even this big saving is small compared with the elimination of fan belt failures on the road."

COSTS CUT 75% AND MORE

**Oriole Motor Coach Lines, Inc.** PITTSBURGH, PA.

"Thanks to your specially engineered Truck Belts, we now have freedom from belt road failures and enjoy at least 75% longer service than ever before."

75% LONGER SERVICE

**Ewing-Von Allmen Dairy Co.** LOUISVILLE, KY.

"Gates Truck Belts give us much lower cost per mile. But the big thing is that loss of time due to fan belt failures has been so greatly reduced."

MUCH LESS COST TIME

**H. P. Welch Co.** SOMERVILLE, MASS.

"In many years of use, we have found that Gates Truck Belts last much longer—and now specify 'Gates Products' at all times."

PROVED THRU YEARS

**United Truck Lines, Inc.** SPOKANE, WASH

"We figure your Model 50TS belts have cut belt expense on our Cummins Diesels by 75% and we have had no road delays caused by belt failure."

CUT COSTS 75%

**Reliable Trans. Co.** LOS ANGELES

"Your 50TS (Truck) Belts have cut our maintenance and replacement costs fully 50%."

50% LOWER COSTS

**Freihofer Baking Co.** PHILADELPHIA, PA

"We are getting between 50% to 80% extra mileage from Gates Truck Belts and road service costs have been reduced to a negligible factor."

50% TO 80% EXTRA SERVICE

# to 80% Longer Wear"

**Make Sure That the TRUCK BELT You Get is Marked with this T***

Look for the letter "T" on the belt itself—as well as on the label—of every belt you buy for truck service. "T" means that the belt has been specially engineered for TRUCKS and BUSES. You can be sure of getting the belt designed for this more demanding service only by seeing to it that you are delivered belts which bear this letter "T."

*REG U S PAT OFFICE

**Multiple-Ply Cover...**
Much Longer Wearing Than on Passenger Car Belts

**SPECIAL Heavy-Duty Compound**

**RAYON CORDS... of Extremely High Tenacity**

You know how greatly Rayon Cords increase the life of Truck Tires! Why not have this same greater strength and longer life in your Truck BELTS? You get this great advantage when you insist on having the one belt that is *specially engineered* for Trucks & Buses—the Gates TRUCK Belt.

**the Patented CONCAVE SIDE**

Like all Gates Belts, the Gates Truck Belt is built with the famous life-prolonging Concave Side—a Gates Patent.

**Ross Island Sand and Gravel Co.** PORTLAND ORE.

"After careful study, we find that your Truck Belts last 53% longer than any belts we used formerly." — 53% LONGER LIFE

**Coach Motor Lines, Inc.** NEW ORLEANS, LA.

"We changed over to the complete Gates line because the added life in your 'T' belt and your Heavy Duty Radiator Hose has been a great help to us." — ADDED LIFE HELPS

**Lee and Eastes** SEATTLE, WASH.

"Gates Truck Belts are giving us at least 50% more mileage—with much less time lost in road delays." — 50% MORE MILEAGE

**C. B. Ragland Co.** NASHVILLE, TENN.

"Thru a period of 5 years, Gates specially engineered Truck Belts have given us 70% longer service and cut road failures greatly." — 70% LONGER SERVICE

Gates

REG U S PAT OFF

The Mark of SPECIALIZED Research

## The GATES RUBBER CO., Denver, U.S.A.
### World's Largest Makers of V-Belts

T 482

# MORE LIGHT WHEN NEW!

# MORE LIGHT FOR LIFE!

Cutaway view of G-E Lamp
- FILAMENTS HELD IN VISE-LIKE GRIP
- MIRROR-LIKE REFLECTOR
- HARD-GLASS PRECISION LENS
- ONE-PIECE CONSTRUCTION

## G-E sealed beam headlamps

## DO NOT GROW DIM!

**TO GIVE YOUR TRUCKS** maximum safety for night driving, equip them with G-E sealed beam headlamps. *They do not grow dim!* Service tests prove that they retain 99% of their original light output right up to the end of lamp life. That's because the one-piece "all-glass" construction of G-E headlamps assures a permanent seal against light-dimming dirt and moisture.

**AND NOW G-E HEADLAMPS** give you more light than ever. They have been improved by G.E. lamp research to provide 12% more light for driving, 16% more light for passing!

**G-E LAMPS**

**GENERAL ELECTRIC**

## Other G-E sealed beam type lamps for special driving needs

**G-E "ALL-GLASS" FOGLIGHTS** greatly reduce scattered light—hazard of bad weather driving. They concentrate light low on the road, improve vision.



**G-E "ALL-GLASS" SPOTLIGHTS** have a powerful, narrow (5°) beam that knifes through the dark. Adds safety and convenience for night driving.

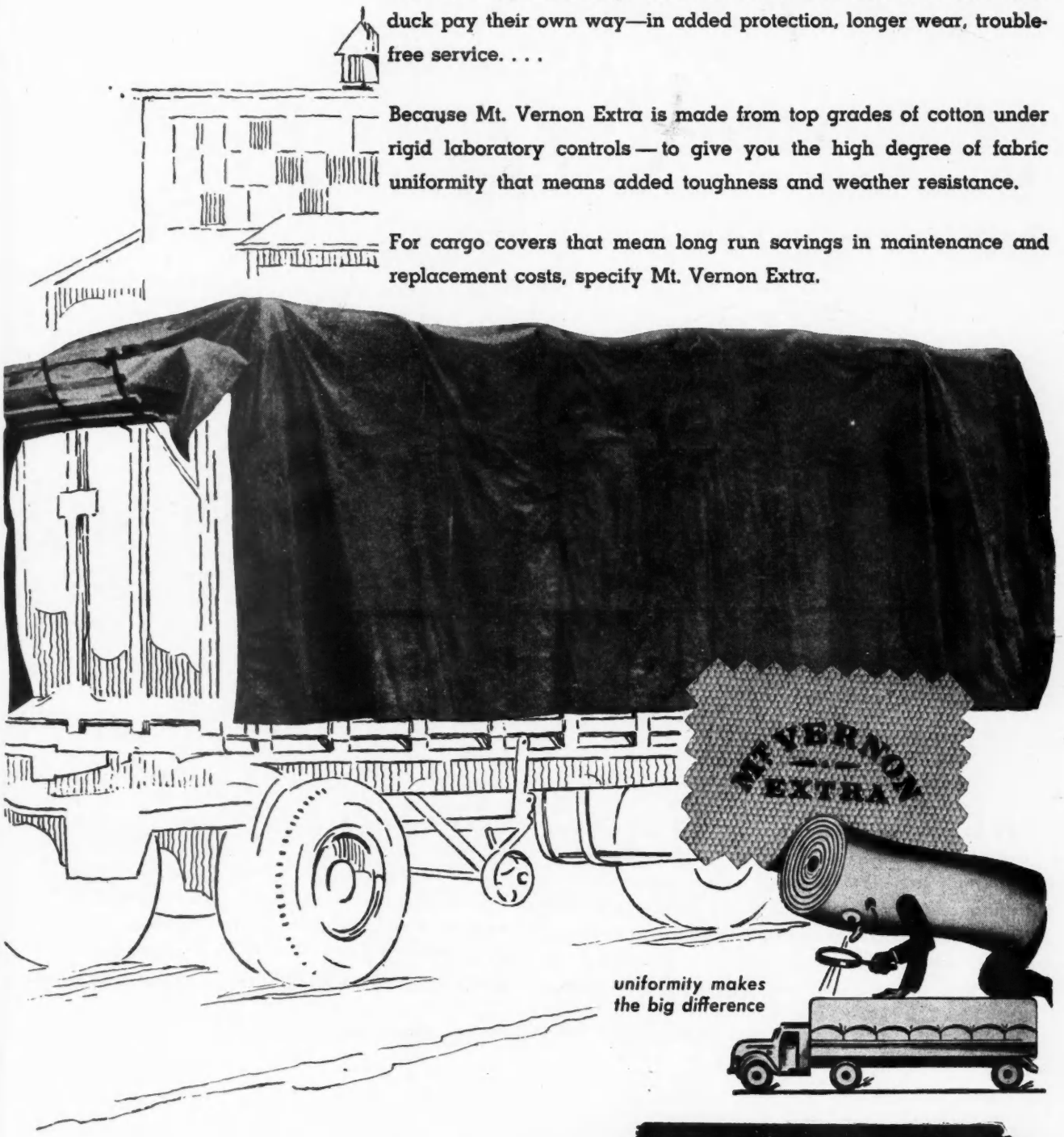
**G-E "ALL-GLASS"** utility lights have many important uses—as back-up lights, extension repair light, loading light, and several others.

# Cargo Covers That "Carry" Themselves

**You'll find that cargo covers made from Mt. Vernon Extra** duck pay their own way—in added protection, longer wear, trouble-free service. . . .

Because Mt. Vernon Extra is made from top grades of cotton under rigid laboratory controls—to give you the high degree of fabric uniformity that means added toughness and weather resistance.

For cargo covers that mean long run savings in maintenance and replacement costs, specify Mt. Vernon Extra.




*uniformity makes the big difference*

**Mt. Vernon-Woodberry Mills**

**TURNER HALSEY**
COMPANY
Selling Agents
40 WORTH ST. • NEW YORK

Branch Offices: CHICAGO • ATLANTA • BALTIMORE • BOSTON • LOS ANGELES • AKRON

# GOOD BEARINGS

## bear the BOWER trade mark

symbol of the ultimate

in bearing design

**What's behind this trademark? Why is it so important to everyone who uses bearings? The Bower trademark is important to you because it means better bearing performance for your product. It shows the important design advantages that make Bower Roller Bearings the most advanced in their field . . . the larger oil groove that assures positive lubrication, the higher flange surface that means better roll alignment—smoother performance, and the spherical roll-ends and flange surfaces that fit exactly to reduce bearing wear—lengthen bearing life. That's what's behind the Bower trademark for you. That's why every bearing that you buy under the Bower trademark is a *good bearing.***

**BOWER ROLLER BEARING COMPANY • DETROIT 14, MICHIGAN**

***For more complete information, write for the new Bower engineering catalog.***

# BOWER

**ROLLER BEARINGS**

# FOR UTMOST RELIABILITY IN THE HEART OF THE FUEL SYSTEM

AVAILABLE FROM THE AC WHOLESALER

## ALWAYS INSTALL A NEW AC FUEL PUMP

Then You Assure NEW Fuel Pump Service

# AC FUEL PUMPS

Your AC Fuel Pumps give you such dependable service and long life because *highest quality is built in,* from blueprints to finished products. There is one sure way to protect that reliability and durability—insist upon AC Pumps and Parts.

Always install NEW AC Fuel Pumps—to avoid short-lived repairs and early pump failures. New AC Fuel Pumps cost slightly more, but they are *worth* more, in peace-of-mind and service assurance. In fuel pumps, it isn't what you *pay*—it's what you *get.*

***If You Repair, Use an AC Repair Kit or Diaphragm Kit***

**SEND FOR AC SHOP MANUALS**

Field Service Department, AC Spark Plug Division, G.M. Corporation
910 Mott Foundation Building, Flint 3, Michigan

Gentlemen: Please send at once, no charge, the AC Shop Manuals checked:

- ☐ How to Service Spark Plugs
- ☐ HOW TO SERVICE FUEL PUMPS
- ☐ How to Service Spark Plug Cleaner
- ☐ How to Service Air Cleaners
- ☐ How to Service Oil Filters
- ☐ How to Service Speedometers
- ☐ How to Service Ammeters and other Instruments

CCJ-4

NAME_____

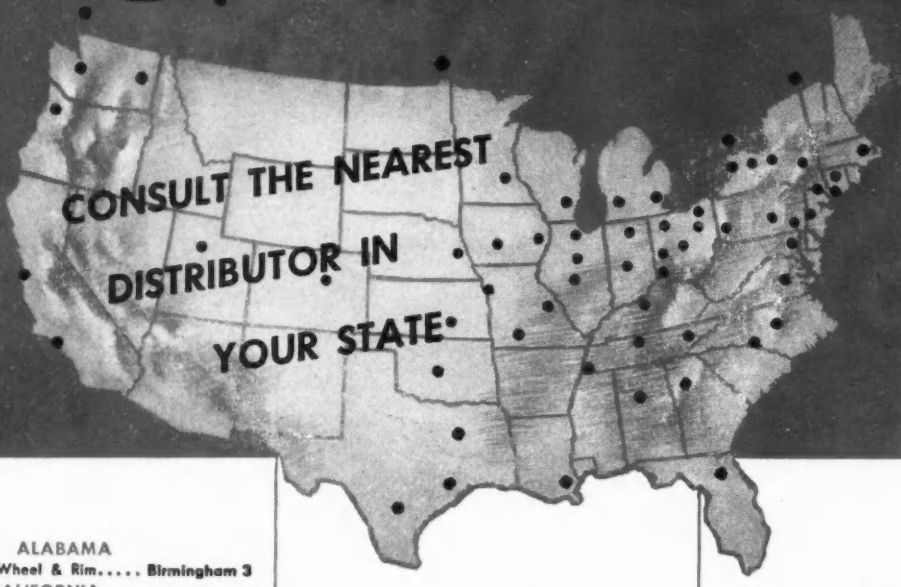
FIRM_____

STREET ADDRESS_____

CITY_____ STATE_____

*for Superior Replacement or Special Change-over Service on—*

# WHEELS and REPLACEMENT PARTS...




ALABAMA
Cruse-Crawford Wheel & Rim..... Birmingham 3

CALIFORNIA
Motor Rim & Wheel Service..... Los Angeles 15
Motor Rim & Wheel Service..... San Francisco 9

COLORADO
Quinn & McGill Motor Supply..... Denver 1

CONNECTICUT
Connecticut Wheel & Rim..... Hartford
Connecticut Wheel & Rim..... New Haven 11

FLORIDA
Southeast Wheel & Rim Co..... Jacksonville 3

GEORGIA
Harris Automotive Service..... Atlanta 3

ILLINOIS
Stone Wheel Incorporated..... Chicago 16
Peoria Wheel & Rim Company..... Peoria 3
Illinois Wheel & Brake Sup..... Springfield

INDIANA
Indiana Wheel & Rim Company.... Indianapolis 4
Wire & Disc Wheel Sales..... South Bend 18

IOWA
Stone Wheel Incorporated..... Davenport
Des Moines Wheel & Rim Co..... Des Moines 12

KANSAS
Borbein-Young & Company..... Wichita 2

KENTUCKY
Auto Wheel & Rim Service..... Louisville 3

LOUISANA
Southern Wheel & Rim Co..... New Orleans 13

MARYLAND
R. W. Norris & Sons Inc..... Baltimore 3

MASSACHUSETTS
New England Wheel & Rim..... Boston 15

MICHIGAN
Rim & Wheel Service..... Detroit 2
Rim & Wheel Service..... Grand Rapids 2

MINNESOTA
Pioneer Rim & Wheel Company.... Minneapolis 4

MISSOURI
Borbein-Young & Company..... Kansas City 8
Borbein-Young & Company..... Springfield
Borbein-Young & Company..... St. Louis 8

NEBRASKA
Morgan Wheel & Equipment..... Omaha 2

NEW JERSEY
Wheels Incorporated..... Newark 4

NEW YORK
Wheels, Incorporated..... Albany 1
Frey, The Wheelman, Inc..... Buffalo 3
Wheels, Incorporated..... New York 23
Frey, The Wheelman, Inc..... Rochester 7
Colbourn Wheel & Rim Co..... Syracuse 4

NORTH CAROLINA
Carolina Rim & Wheel Co..... Charlotte 1
Carolina Rim & Wheel Co..... Raleigh

OHIO
Motor Rim Manufacturers..... Akron
Rim & Wheel Service..... Cincinnati 2
Motor Rim Manufacturers..... Cleveland 1
Hayes Wheel & Spring Service..... Columbus 15
Rim & Wheel Service..... Dayton 3
Wheel & Rim Sales Company..... Toledo 4

OKLAHOMA
Southwest Wheel Inc..... Oklahoma City 1

OREGON
Auto Wheel Service..... Portland 9

PENNSYLVANIA
Standard Wheel & Rim Co..... Harrisburg
Kay Wheel Sales Company..... Philadelphia 4
Thomas Wheel & Rim Company... Philadelphia 30
Wheel & Rim Sales Company..... Pittsburgh 13

TENNESSEE
Harris Automotive Service..... Knoxville 17
Beller Wheel, Brake & Supply..... Memphis 3
Beller Wheel, Brake & Supply..... Nashville

TEXAS
Southwest Wheel Inc..... Dallas 2
Southwest Wheel Inc..... Houston 2
Southwest Wheel Inc..... San Antonio 6

UTAH
Henderson Rim & Wheel Serv..... Salt Lake City 1

VIRGINIA
Dixie Wheel Company..... Richmond 20

WASHINGTON
Motor Wheel & Parts Co..... Seattle 22
Bearing & Rim Supply..... Spokane 8

WISCONSIN
Stone Manufacturing Company..... Milwaukee 3

CANADA
Alberta Wheel Distributors..... Edmonton, Alberta
General Automobile Equip..... Montreal, Quebec
Wheel & Rim Co. of Canada.... Toronto 5, Ontario
Wheels & Equipment Limited..... Vancouver, B. C.
Automobile Supply Company... Winnipeg, Manitoba

Know How

*ASSURES PROVEN PRODUCTS AT...*

**KELSEY-HAYES WHEEL COMPANY**

**DETROIT 32, MICHIGAN**

**Wheels—Hub and Drum Assemblies—Brakes—"Vacdraulic" Brake Power Units—for Passenger Cars, Trucks, Buses—made by Kelsey-Hayes' 4 Michigan Plants and Windsor-Canada Plant • "Magdraulic" Electric Brakes—"Lathan" Vacuum Power Brake Equipment for Tractor-Trailers—made by Kelsey-Hayes' South San Francisco-Lathan Plant. Wheels—Hubs—Axles—Parts for Farm Implements—made by Kelsey-Hayes' French & Hecht Plant at Davenport, Iowa.**

# CRESCENT

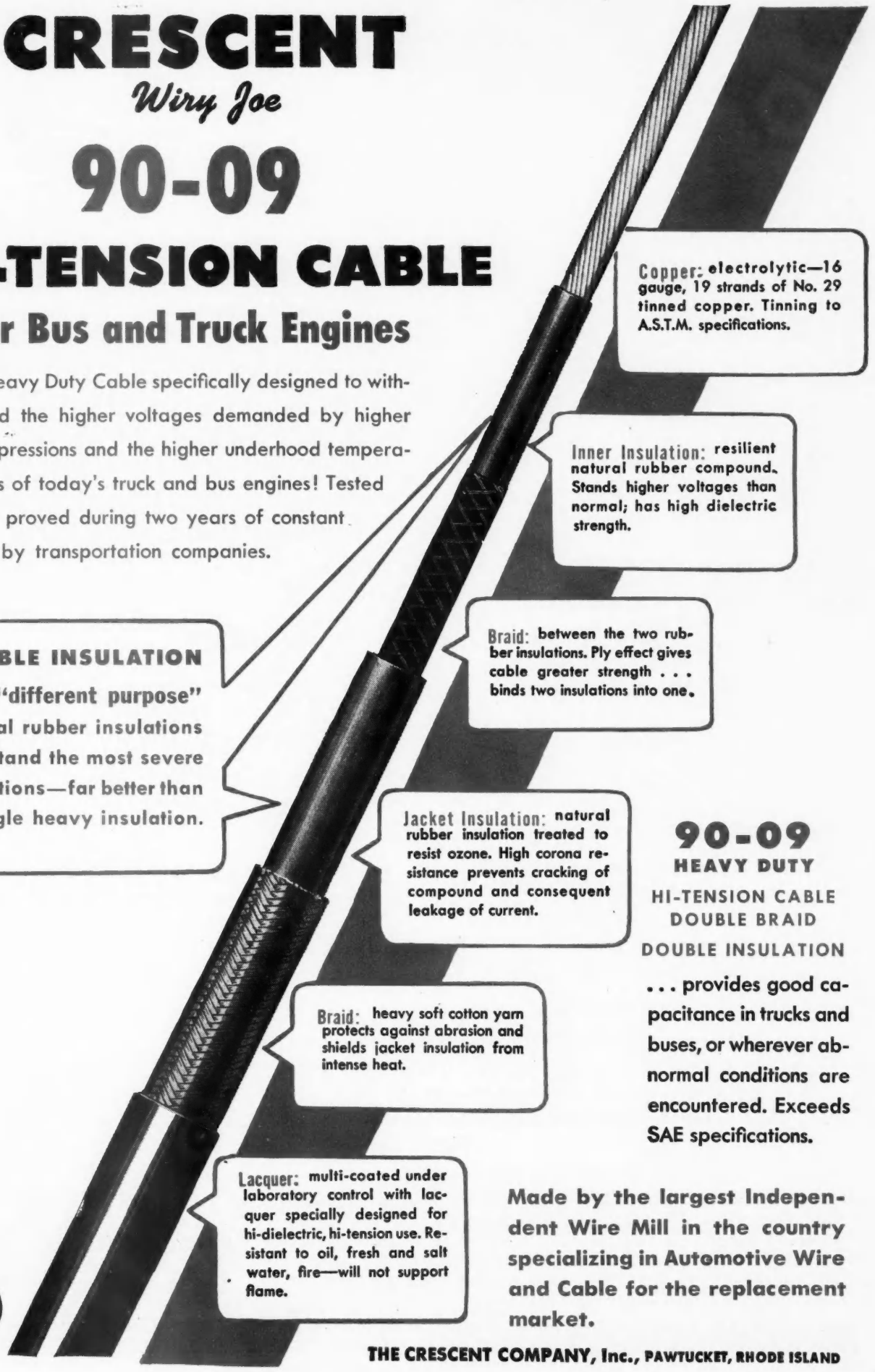
*Wiry Joe*

# 90-09

# HI-TENSION CABLE

## ➡ For Bus and Truck Engines

A Heavy Duty Cable specifically designed to withstand the higher voltages demanded by higher compressions and the higher underhood temperatures of today's truck and bus engines! Tested and proved during two years of constant use by transportation companies.



**DOUBLE INSULATION**

**Two "different purpose" natural rubber insulations withstand the most severe conditions—far better than a single heavy insulation.**

**Copper:** electrolytic—16 gauge, 19 strands of No. 29 tinned copper. Tinning to A.S.T.M. specifications.

**Inner Insulation:** resilient natural rubber compound. Stands higher voltages than normal; has high dielectric strength.

**Braid:** between the two rubber insulations. Ply effect gives cable greater strength . . . binds two insulations into one.

**Jacket Insulation:** natural rubber insulation treated to resist ozone. High corona resistance prevents cracking of compound and consequent leakage of current.

**Braid:** heavy soft cotton yarn protects against abrasion and shields jacket insulation from intense heat.

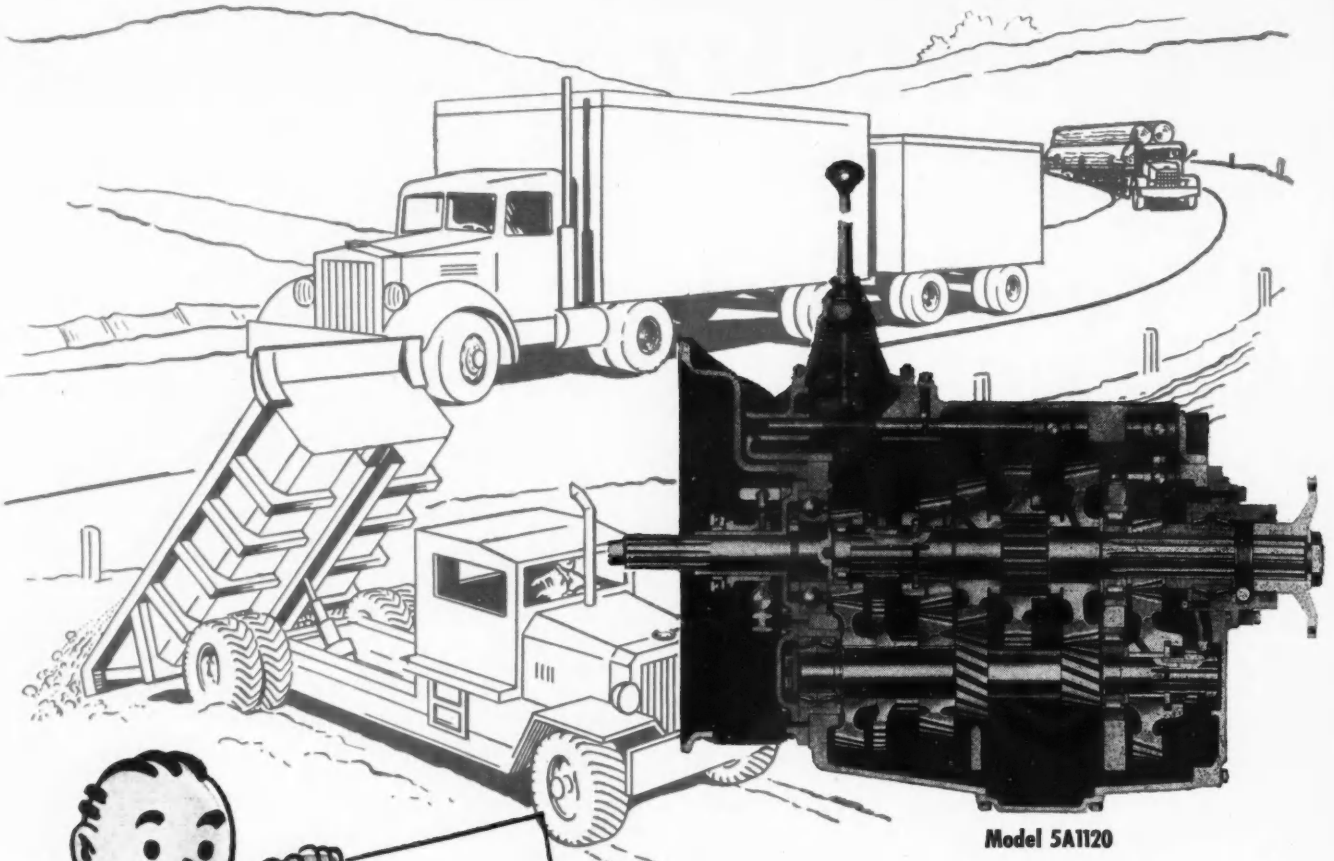
**Lacquer:** multi-coated under laboratory control with lacquer specially designed for hi-dielectric, hi-tension use. Resistant to oil, fresh and salt water, fire—will not support flame.

**90-09**
**HEAVY DUTY**
**HI-TENSION CABLE**
**DOUBLE BRAID**
**DOUBLE INSULATION**

. . . provides good capacitance in trucks and buses, or wherever abnormal conditions are encountered. Exceeds SAE specifications.

**Made by the largest Independent Wire Mill in the country specializing in Automotive Wire and Cable for the replacement market.**

**THE CRESCENT COMPANY, Inc., PAWTUCKET, RHODE ISLAND**



Model 5A1120

# for the biggest

The Fuller Manufacturing Company introduces its newest transmission—Model 5A1120—capable of handling the newest, biggest engines in both on and off-the-highway service.

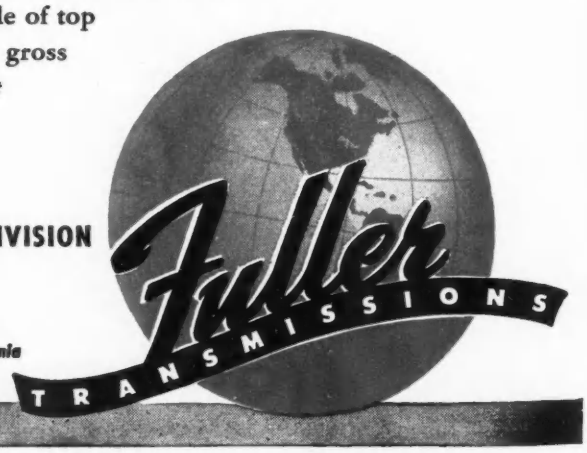
The Model 5A1120 Fuller Transmission is similar in construction to the popular and proved Model 5A920 and provides the same ratios, but is even greater in capacity—built for engines up to 1120 cu. in. Model 5A1120 features all-helical gearing in the forward speeds, three-point bearing suspension for the main shaft and extra-heavy bearings to meet the most rugged operating requirements.

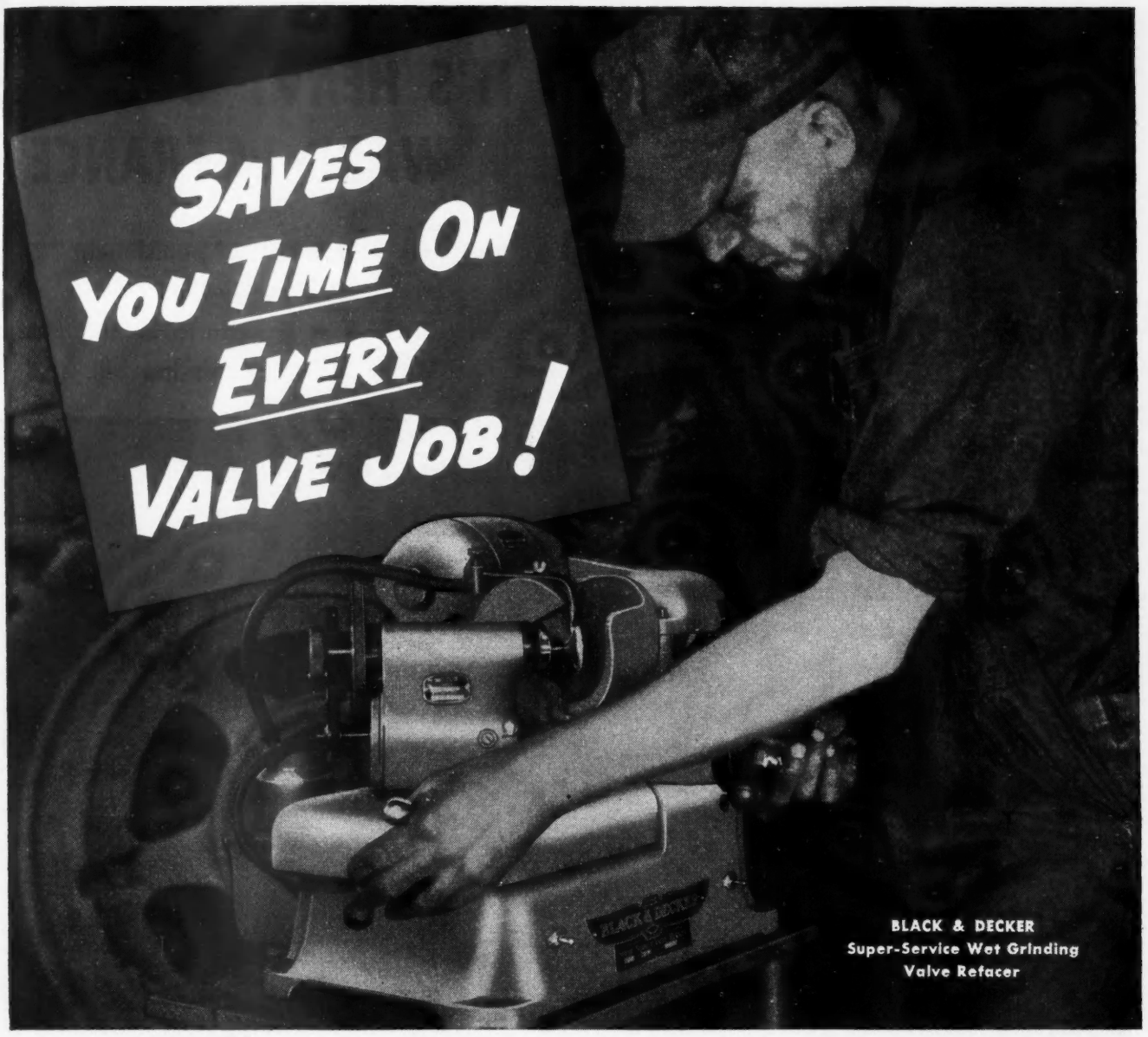
Short, easy shifts are an inbuilt characteristic of the new Model 5A1120, as of all Fuller Transmissions. A transmission capable of top performance at high speed or low speed . . . under high gross or low gross loads . . . Model 5A1120 is the *best* for the *biggest* engines and *biggest* trucks.

**FULLER MANUFACTURING COMPANY, TRANSMISSION DIVISION**
**KALAMAZOO 13F, MICHIGAN**

*Unit Drop Forge Division, Milwaukee 1, Wisconsin*

*Western District Office (Both Divisions): 1060 East 11th Street, Oakland 6, California*





**SPEED UP VALVE SEAT GRINDING**

Handy VIBRO - CENTRIC* Kits help you handle valve seat grinding at top speed! The Standard Kit is supplied with Stones and Pilots of the exact sizes for work on all popular cars and light trucks. The Heavy-Duty Kit has Stones and Pilots for most engines from light cars to large trucks and tractors.

*Trade Mark Reg. U. S. Pat. Off.

THE Black & Decker Valve Reconditioning Method is the proven way to speed up valve maintenance on your fleet by turning out more jobs per day! Use the Black & Decker *Super-Service Valve Refacer* to quickly grind an absolutely smooth surface and factory-accurate angle on valve faces, to grind valve stems and tappers for exact clearance. Use the Black & Decker *Vibro-Centric Valve Seat Grinder* to grind a mirror finish on valve seats, to turn out perfect results with only a few seconds grinding per seat.

Both tools give foolproof accuracy that means *perfectly matched, gas-tight* valve assemblies. Get it right the first time. No work returned to tie you up. Ask your nearby Black & Decker Distributor for details. Write for free catalog to: The Black & Decker Mfg. Co., 632 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

**Black & Decker**

**PORTABLE ELECTRIC TOOLS**

# "WHEN IT'S HEAVY GOING GIVE ME A WARD LA FRANCE"

**On jobs where trucks must take real punishment and stand up, you can't beat a heavy-duty truck built with frame and body that can take it. The rugged Ward LaFrance fills the bill.**

The trend is definitely to heavy-duty trucks because of proven performance and economy. Particularly in the construction field, up to 23% increase in demand for heavy-duty trucks is reported by contractors and highway engineers. In other fields of trucking, the big tractor-trailer combinations are hauling more and more tonnage.

See for yourself the advantages offered by the big, new Ward LaFrance—extra load capacity, reserve powered engine, heavy-duty construction throughout. Get the performance you have been looking for . . . and at low cost. See your local dealer today.

***Look for the big truck with the exclusive "flat top" fender***

## WARD LA FRANCE TRUCK CORPORATION

**ELMIRA, NEW YORK**

# KEEPING COOL ON THE HEAVY HAULS...
# FEDERAL TRUCKS USE LONG RADIATORS

Long radiators provide the efficient heat exchange required by heavy-duty truck engines. The Federal Motor Truck Company, manufacturers of trucks rated up to 55,000 pounds Gross Vehicle Weight, has been a valued customer of ours for over 31 years.

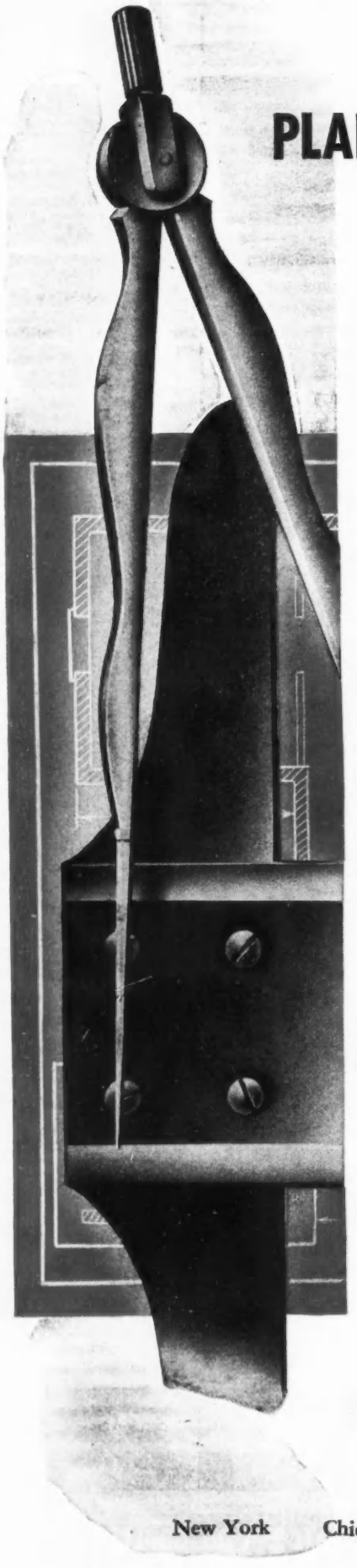
Long-designed fin-and-tube radiators provide for smooth water courses and minimum resistance to air flow. Since 1903, they have been in use throughout the automotive industry for the high-efficiency engine cooling requirements of passenger cars, trucks, buses and tractors.

**LONG MANUFACTURING DIVISION**
**BORG-WARNER CORPORATION**
**Detroit 12, and Windsor, Ontario**

A PRODUCT OF B-W BORG-WARNER

**LONG**

**CLUTCHES • RADIATORS • OIL COOLERS**



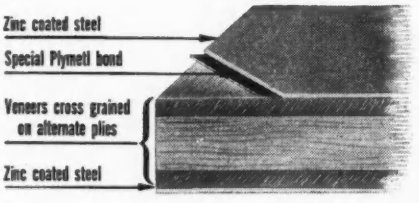
# PLAN WITH *Plymetl*

## *TO BUILD BETTER TRUCK BODIES*

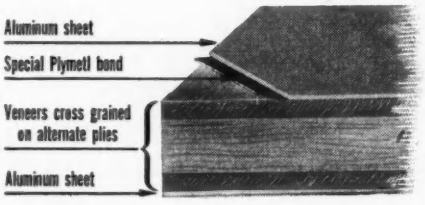
Plymetl combines the light weight and rigidity of plywood with the strength of metal. This unique combination of materials gives Plymetl characteristics that offer both the body builder and the fleet owner important benefits and advantages when used in truck and trailer construction . . . Because Plymetl is more easily worked and involves simpler, faster methods of body construction, the body builder saves on time and manpower costs. It also creates a more saleable product for him because of the greater values Plymetl bodies offer the fleet owner . . . These values are as follows . . . 1. Greater operating efficiency because Plymetl makes a lighter body. The weight saved is hauled as extra payload. Savings up to 1 ton per unit have been made through the use of Plymetl . . . 2. Flat, smooth, and rigid Plymetl looks better longer. It reflects no distorting highlights and has greater resistance to denting than plain sheet metals . . . 3. Plymetl has more than 1,000 times the insulating value of sheet metal . . . 4. Bodies of Plymetl have proved their ability to give greater service with less maintenance.

Only Plymetl offers you these important values . . . Specify Plymetl (THE metal-clad plywood) . . . A few of the more widely used types are described below.

✳ PLYMETL VE and EVE — A plywood plaque with zinc-coated steel sheet permanently bonded by an exclusive Haskelite method to one (VE) or both faces (EVE). Plymetl panels may be obtained in a range of thicknesses and sizes to suit specific applications. Simple wood-or-metal working tools will fabricate Plymetl.




✳ PLYMETL VU and UVU—A plywood plaque with aluminum sheet permanently bonded to one (VU) or both faces (UVU). The great strength and light weight factors of plywood are combined with the light weight of aluminum. Plymetl may be formed to certain curvatures.




Write for complete data on Plymetl, and bulletin SC45 which gives details on other types of Haskelite materials. Let Plymetl and Haskelite engineers help you design and build products that look better . . . sell better . . . and perform better.

# HASKELITE

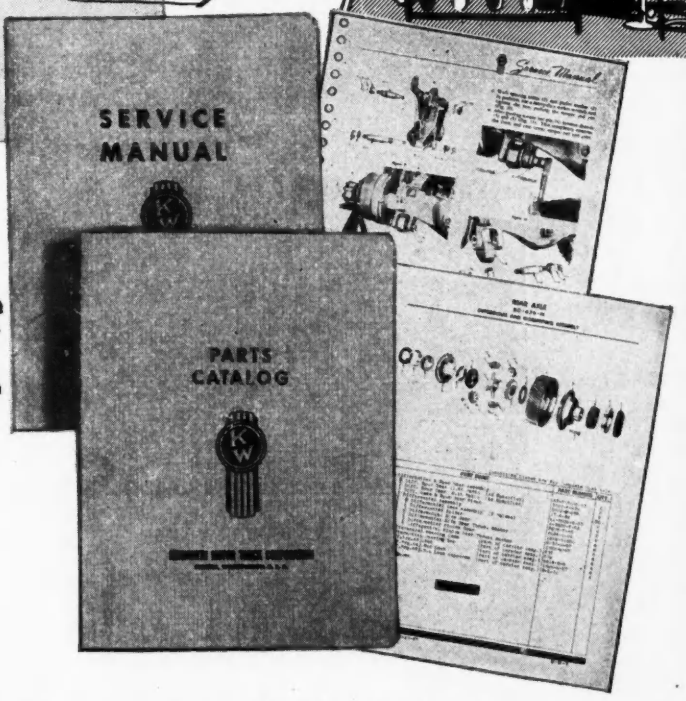
**Dept. TC, Grand Rapids 2, Michigan**

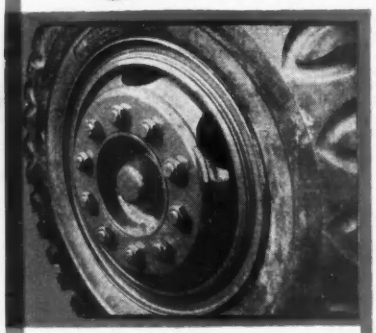
New York Chicago Detroit St. Louis Philadelphia Los Angeles Cleveland

Canada: Railway & Power Engineering Corporation, Ltd.

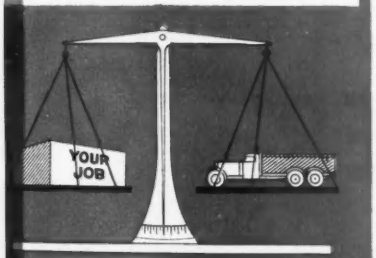
# *If You're a Genius*

# DON'T READ THIS...

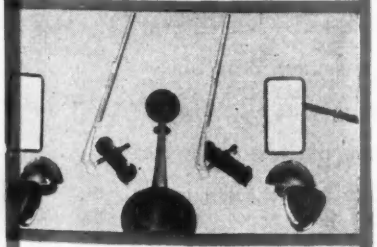


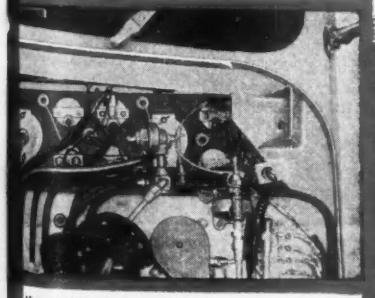
Heavy-duty bus-type front wheel studs are used by Kenworth for added safety.




Balance and flexibility — of design, specifications and type of service — are reasons for Kenworth preference.



Supplying of dual equipment is standard production procedure with Kenworth.



Kenworth's exclusive "inside-out dash" permits easy and speedy service of the

Long-haired geniuses so often enjoy doing the job the hard way, but wise truck operators and expert repairmen everywhere welcome Kenworth's complete, clearly illustrated Service and Parts Manuals. Kenworth users tell us that these books mean substantial savings to them in time and trouble. They like the exploded view illustrations in the Parts Manual, which are alphabetically indexed for quick and easy identification of all parts. They comment enthusiastically on the profusely illustrated Service Manual, where the text covers in detail each mechanical operation of assembly, disassembly and maintenance. The fact that Kenworth supplies these manuals and keeps them up to date is just one more reason why *there's more WORTH in* **KENWORTH.**

# KENWORTH

**TRUCKS BUSES**

FACTORY AND HOME OFFICE: SEATTLE

# Tremendous Loads on Mountain Roads

## Easily Steered with GEMMER

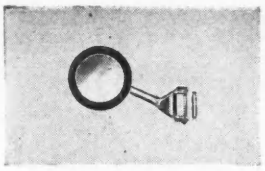
KENWORTH MOTOR TRUCKS . . . built on the west coast for super-heavy work . . . are equipped with Gemmer Steering.

Tremendous loads like these big logs have to be hauled over mountain highways, some of which are less smooth than boulevards. Steering *has* to be good. It must be easy and positive or control of the truck would be difficult. Ease of steering in the Kenworth Truck is assured by the Gemmer worm and roller tooth sector with its liberal use of antifriction bearings providing the necessary high efficiency.

Gemmer Steering Gears have an abundance of strength, dependability and durability for tough jobs. *With reasonable care a Gemmer Gear will last the life of the vehicle.* 3217

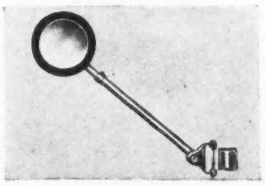
**GEMMER MANUFACTURING COMPANY • 6400 Mt. Elliott, Detroit 11, Mich.**

# DO-RAY STURDI-BILT TRUCK MIRRORS



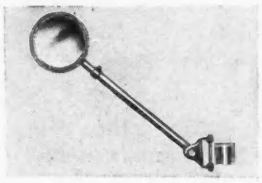
**FOR SMALL TRUCKS**

Do-Ray No. 1348. Strongly built, also with heavy rubber bumper guard. Head diameter 5⅜", length 10½". Silver-like lustre finish.



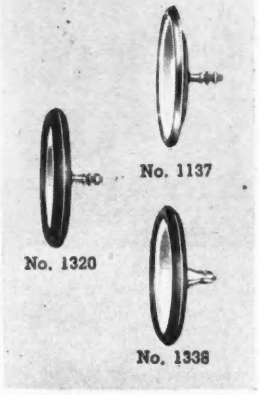
**UNIVERSAL**

Do-Ray No. 1319. Adjustable to any position, extends to 27½". Head diameter 5⅜", with heavy rubber bumper guard, silver-like lustre finish. Body or hinge installation.



**SPUN IN GLASS**

Do-Ray No. 1122. Head diameter 5", adjustable to any position, extension to 27½". Rim is cadmium plated, with black enamel finish. Body or hinge installation.

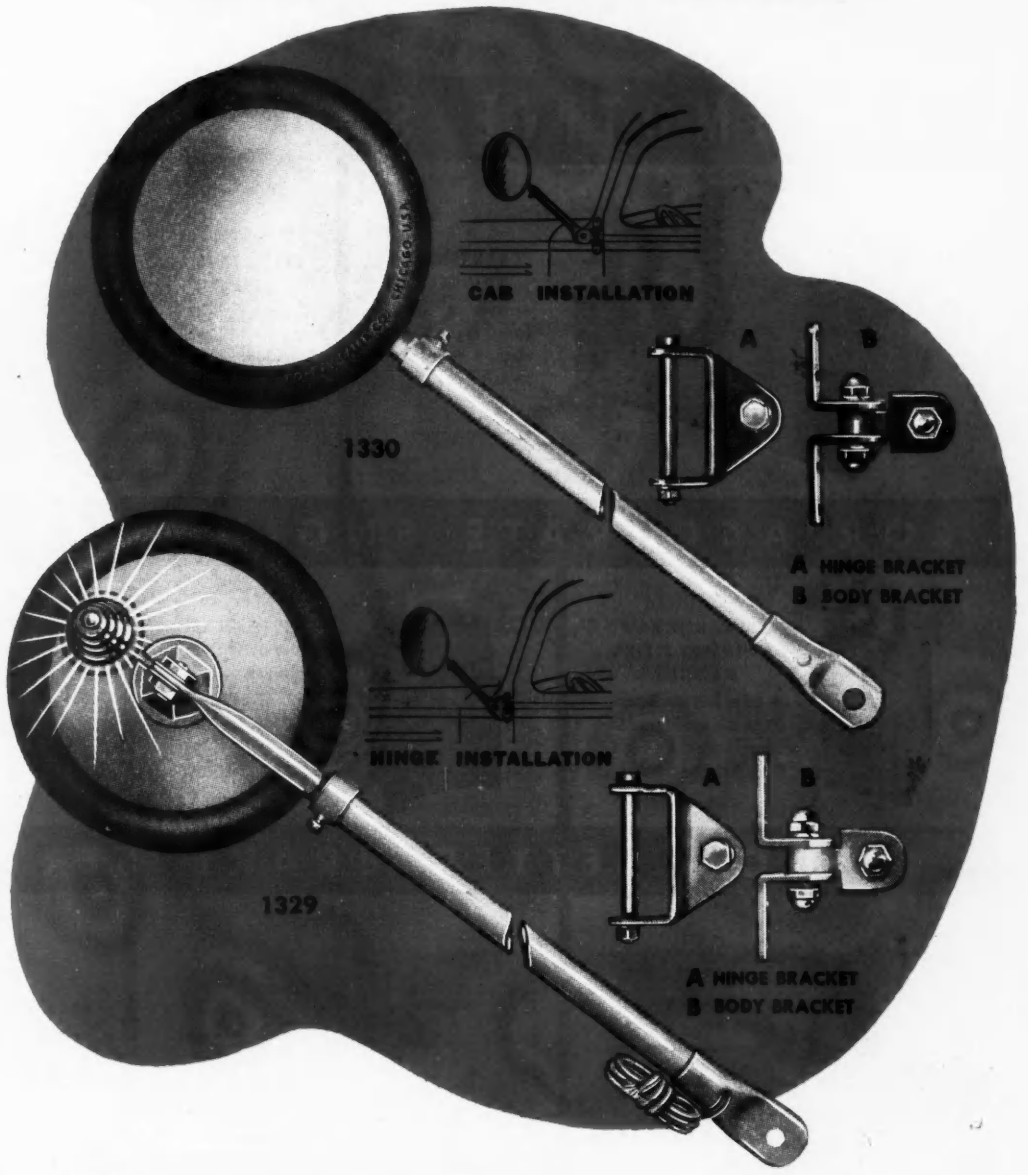



**REPLACEMENT MIRROR HEADS**

No. 1137—Head only, diameter 5", has black enamel finish with cadmium plated rim.

No. 1320—Head only, diameter 5⅜", has silver-like lustre finish with rubber bumper guard.

No. 1338—Head only, diameter 6½", has silver-like lustre finish with rubber bumper guard. For STURDI-BILT and other makes.




Available again! It's DO-RAY'S famous STURDI-BILT rubberhead rear view truck mirror—the mirror with the heavy rubber bumper guard that *absorbs* the bumps and shocks of rough going, and reduces mirror damage to the minimum. A complete line of truck mirrors in every price range.

Shown above are Nos. 1329–1330—STURDI-BILT rubberhead is 6½ inches overall and can be extended 29 inches from the truck body, besides being adjustable to any position. Comes in silver-like lustre finish either with or without clearance lamp.

A Certified DO-RAY Product

**DO-RAY LAMP COMPANY**

1458 S. Michigan Ave. • Chicago 5, Illinois

CERTIFIED PRODUCT — DO-RAY — Tested by Recognized Testing Laboratories Passing Specifications of S.A.E. and I.E.S. Meeting Requirements of I.C.C. — SAFER LIGHT — SAFER SIGHT



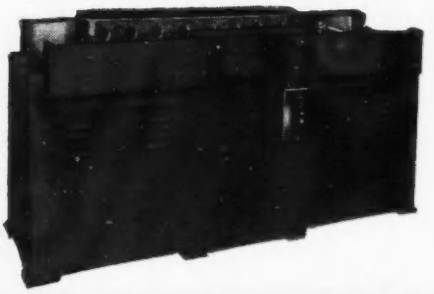
*Use postage-paid card inserted at page 137 for free information on advertised products*

# Economical LEMPCO THE COMPLETE LINE Profitable

## AUTOMOTIVE SHOP EQUIPMENT

**CRANKSHAFT GRINDERS**
—low in cost; fast operating; 5 models available.

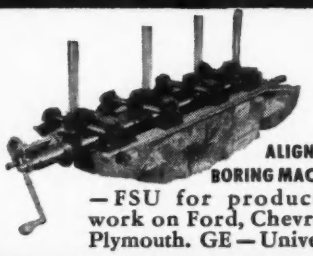
**WET SURFACE CYLINDER HEAD GRINDER**
—heavy duty disc type; wheel-raising unit compensates for wear.



## FOR ACCURATE ENGINE REBUILDING

**HYDRAULIC ROD AND INSERT SIZING MACHINE**
—cuts insert bearings on *solid* pads. Semi- and rough babbitted rods.

**CLUTCH PLATE AND FLYWHEEL GRINDER**
—turns and grinds in one set-up; hydraulic feed.



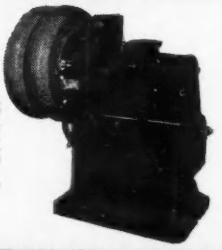
**ALIGN BORING MACHINES**
—FSU for production work on Ford, Chevrolet, Plymouth. GE—Universal.

## FOR BETTER BRAKE SERVICE

**BRAKE RELINER**
—air operated; smooth, easy operation; takes up to No. 10 rivets.

**BRAKE SHOE GRINDERS**
—grind shoes to true arc, prepare shoes for bonded lining; 2 models.

**BRAKE DRUM LATHES**
—turn and grind in one set-up; 6 models available.

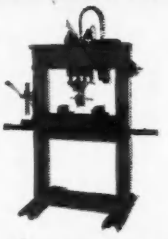


## FOR IMPROVED SHOP EFFICIENCY

**MOBILCRANE**
—one-ton hydraulic mobile floor crane. Eliminates need for overhead hoists or rails.

**ENGINE STANDS AND DOLLIES**
—2 models; Universal dolly, V-8 stands also 6-ton Quik-Set car stands.

**PRESSUREMATIC PRESSES**
—for pressing, riveting, bending, straightening. Electric and hydraulic—20, 40, 60-tons. 2-3 and 10-ton Arbor Presses.

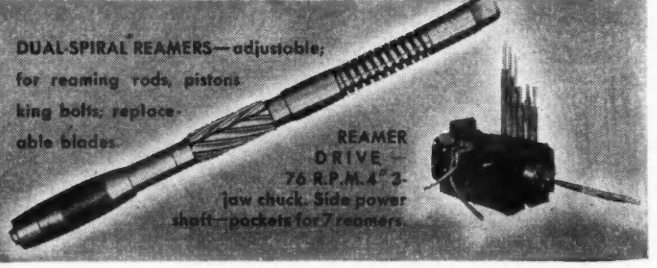


## ASK YOUR JOBBER

for full details on the equipment listed here . . . also REAMER KITS, PISTON VISES, PIN VISES, TOOL BIT KITS, PORTABLE CRANKPIN GRINDERS, REAMER GRINDERS . . . or write for catalogs.

LEMPCO PRODUCTS, INC., 5750 Dunham Road, Bedford, Ohio

DUAL-SPIRAL REAMERS—adjustable; for reaming rods, pistons king bolts; replaceable blades.



REAMER DRIVE—76 R.P.M. 4" 3-jaw chuck. Side power shaft—pockets for 7 reamers.

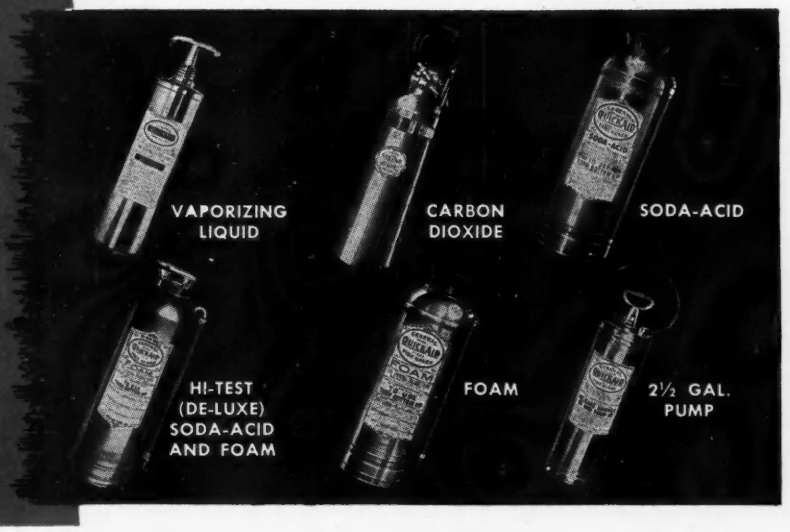
# Have You Money to Burn?

NO SENSIBLE PERSON would burn *money*. Yet every year in the United States over $600,000,000 goes up in smoke.

You are already paying part of this bill in higher insurance rates. Yet you stand to lose much more if fire strikes *you*.

Loss of production time, loss of property that cannot be soon replaced, loss of standing in the business community, loss of life itself—these are losses that can never be repaid.

To guard against such losses, equip your home, car, boat, and place of business with QUICK AID Fire Extinguishers. There is a QUICK AID FIRE GUARD for every fire hazard. Consult your dealer or write for free copy of "Your Fire Protection Insurance Policy."




GENERAL QUICK AID FIRE GUARD

**THE GENERAL DETROIT CORP.**

DETROIT 7, MICHIGAN

NEW YORK • PHILADELPHIA • ATLANTA • CHICAGO • DALLAS

*Subsidiaries:*

THE GENERAL PACIFIC CORP.

LOS ANGELES • SAN FRANCISCO • SEATTLE

THE GENERAL DETROIT CORP., CANADA, LTD.

TORONTO • MONTREAL

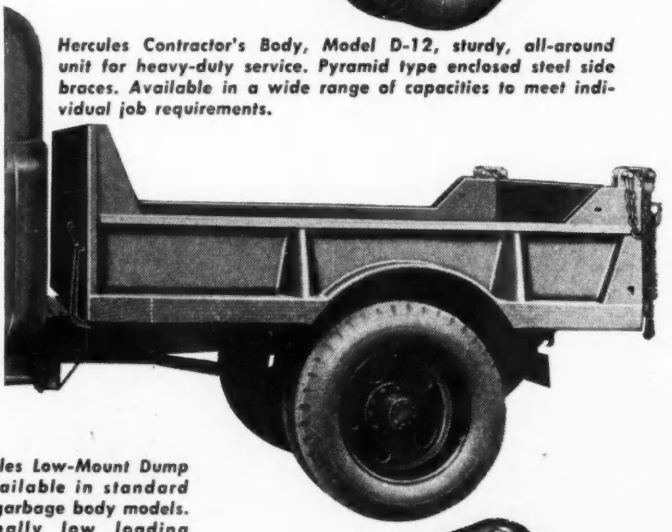
# HERCULES HYDRAULIC HOISTS AND DUMP BODIES

## DESIGNED and BUILT TO DO THE JOB

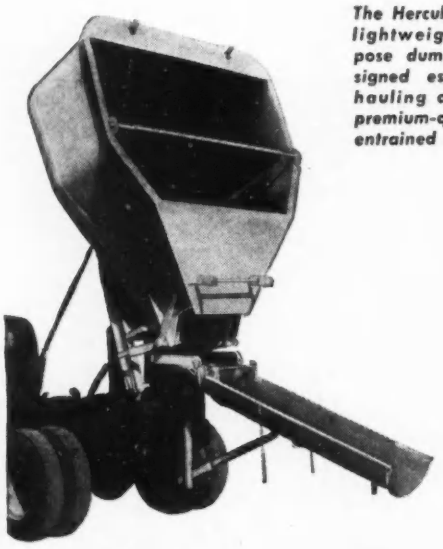
Dependable, economical performance—that's what you need to make dump truck operation profitable. And that's the kind of performance built right into Hercules Hydraulic "Center-Lift" Hoists and Dump Bodies. Every Hercules unit is designed for a specific job, and built to do that job in less time, at lower cost.

Hercules engineering experience and precision craftsmanship have been combined to produce powerful, efficient "Center-Lift" hoists and rugged, built-for-service dump bodies. Wherever there's a difficult hauling and dumping assignment, you'll find Hercules equipment, turning in the steady, maintenance-free performance that means profitable operation. If that's the kind of performance you're looking for, you'll want to know more about Hercules Hoists and Dump Bodies. Specifications and data on the complete Hercules line available without obligation; write today, outlining your requirements.

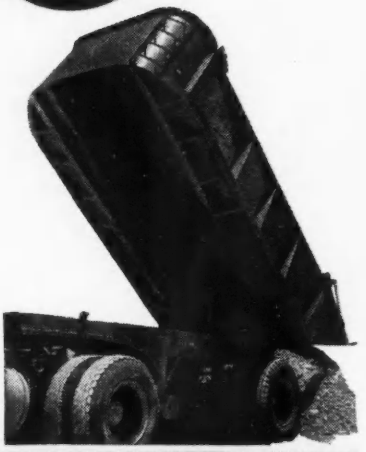
*Hercules Contractor's Body, Model D-12, sturdy, all-around unit for heavy-duty service. Pyramid type enclosed steel side braces. Available in a wide range of capacities to meet individual job requirements.*



*The Hercules Low-Mount Dump Body, available in standard dump or garbage body models. Exceptionally low loading height of this unit saves time and labor on all manual loading jobs.*



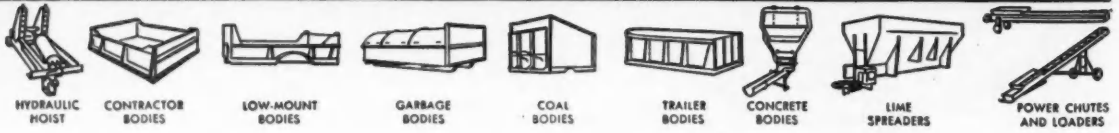
*The Hercules Aircreter, lightweight, all-purpose dump body designed especially for hauling and placing premium-quality, air-entrained concrete.*



*Hercules Heavy-Duty Dump Bodies for semi-trailer mounting. Suitable for use on straight or drop-frame trailers. Straight and round-nosed models.*

LIFT WITH EASE—USE **Hercules**

STEEL PRODUCTS CORPORATION • GALION, OHIO



HYDRAULIC HOIST | CONTRACTOR BODIES | LOW-MOUNT BODIES | GARBAGE BODIES | COAL BODIES | TRAILER BODIES | CONCRETE BODIES | LIME SPREADERS | POWER CHUTES AND LOADERS

# YOU WANT LOWER OPERATING COSTS?

## see your United Motors Distributor for

## Original-Equipment Parts— Centralized Service—Complete Parts Lines

The special services your United Motors distributor offers fleet owners will probably help you to increase maintenance efficiency and reduce operating costs. These services are based on:

**1** **ORIGINAL-EQUIPMENT PARTS**—Your United Motors distributor handles the leading original-equipment parts used on America's most popular trucks, buses and cars. Their established quality means better performance, longer life, and lower operating costs per mile.

**2** **CENTRALIZED SERVICE**—Your United Motors distributor is a single source for the United Motors lines you need. You save time and trouble when you deal with him.

**3** **COMPLETE PARTS LINES**—Your United Motors distributor supplies parts for all models—old as well as new. Twenty United Motors warehouses throughout the country insure an even flow of parts at all times—and quickly, too!

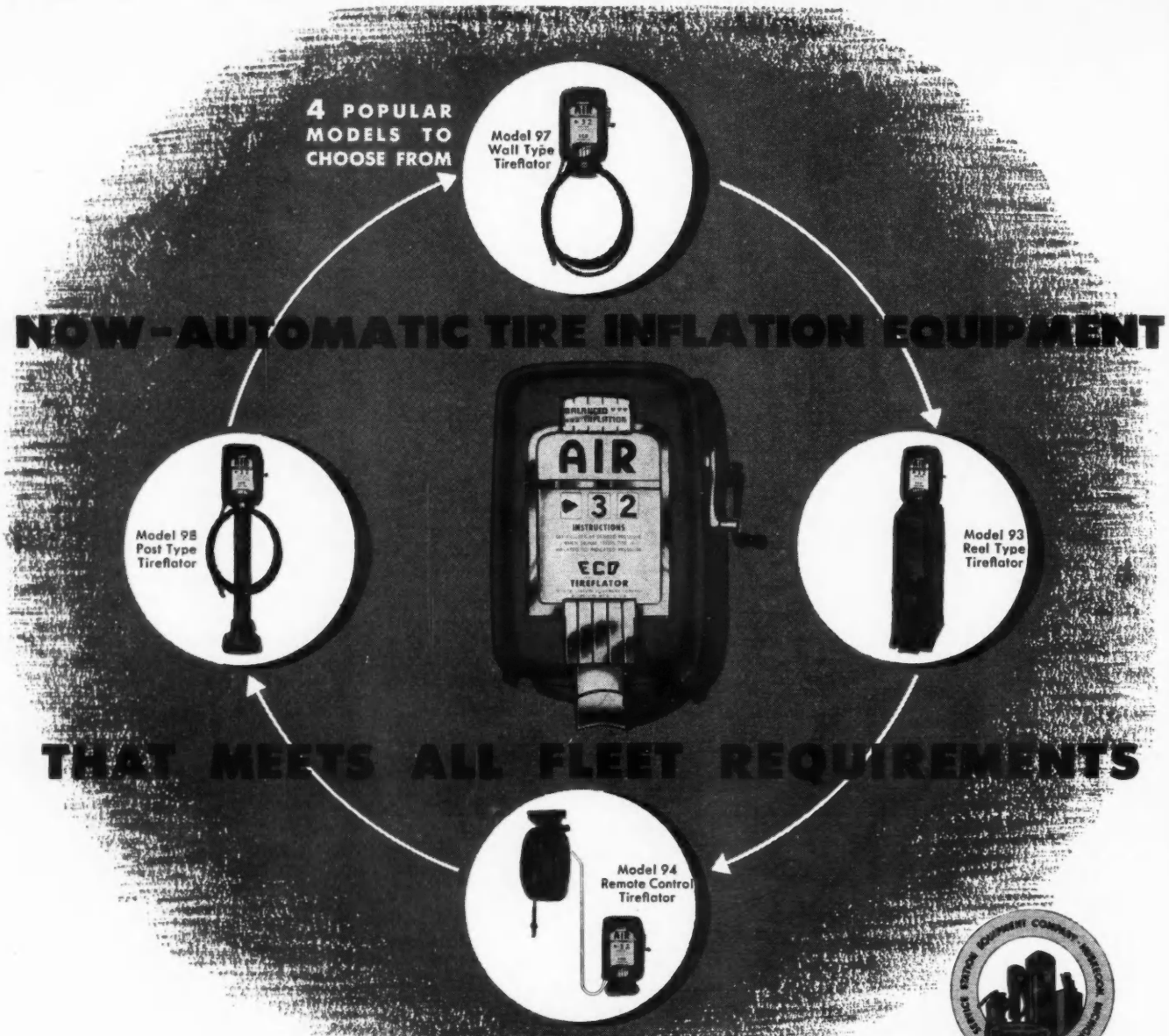
Take your maintenance requirements to your United Motors distributor. Get *all* the facts about the services he offers you to help maintain lower operating costs per mile.

UNITED MOTORS ORIGINAL-EQUIPMENT LINES FOR BETTER PERFORMANCE AND LONGER LIFE

DELCO-REMY Starting, Lighting and Ignition
DELCO Batteries
INLITE Brake Lining
NEW DEPARTURE Ball Bearings
HYATT Roller Bearings
GUIDE Lamps
DELCO Shock Absorbers
AC Fuel Pumps, Gauges and Speedometers
DELCO Hydraulic Brakes
HARRISON Radiators
HARRISON Heaters
HARRISON Thermostats
DUREX Gasoline Filters
SAGINAW Jacks

UNITED SERVICE MOTORS

**UNITED MOTORS SERVICE**
DIVISION OF GENERAL MOTORS CORPORATION
GENERAL MOTORS BUILDING • DETROIT 2, MICHIGAN




## ECO *BALANCED INFLATION*™ TIREFLATORS —Save Tires, Time and Trouble

a JOHN WOOD Affiliate

Fleet operators know that correct tire inflation is fundamental to the success of preventative maintenance systems. They know all systems based on comparative tire checks for reducing tire trouble and increasing tire mileage and on the road safety, depend on correct tire inflation.

The new Eco *automatic* Tireflator with its 5 to 110 pound pressure range and factory calibrated sealed-in, precision accuracy assures fleet operators of exactly correct tire pressure to start with—makes tire maintenance systems work.

Fully automatic Eco tire inflation saves maintenance time — cuts out laborious, time-consuming "inflate-and-test" operations.

There are 4 new Eco models available to meet your specific shop requirements. Ask your Jobber about them or write today for descriptive literature.

*Copyright 1947 Service Station Equipment Company.

**SERVICE STATION EQUIPMENT COMPANY — *MUSKEGON, MICHIGAN***

### THESE ECO FEATURES ARE IMPORTANT IN EVERY FLEET OPERATION

**5 — 110 POUND RANGE** — Every size automotive tire *including* truck tires can be accurately inflated.

**NEW PRECISION ACCURACY** — Factory sealed precision mechanism is protected in a weatherproof housing. Eco is always on hand.

**NEW EASY READING** — Large indicator numerals eliminate distorted readings. Give fast positive setting.

**NEW DELIVERY SPEED** — Eco's rate of inflation increases for large capacity or high pressure tires. Speeds tire maintenance.

***PLUS MANY OTHER FEATURES!***

# the best brake is AIR

The logic of installing the safest possible brakes on a vehicle is indisputable—and that means Bendix-Westinghouse Air Brakes, of course. But when you back up that logic with the dollar and cents fact that the extra protection *pays for itself* in a short time, you have an investment too good to pass up. Vehicles carry heavier payloads safely, travel on faster schedules, drivers are better satisfied, and service costs lower—all because of Air Brakes. Check with your Bendix-Westinghouse Distributor. He'll show you why the best brake is AIR.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY, ELYRIA, OHIO

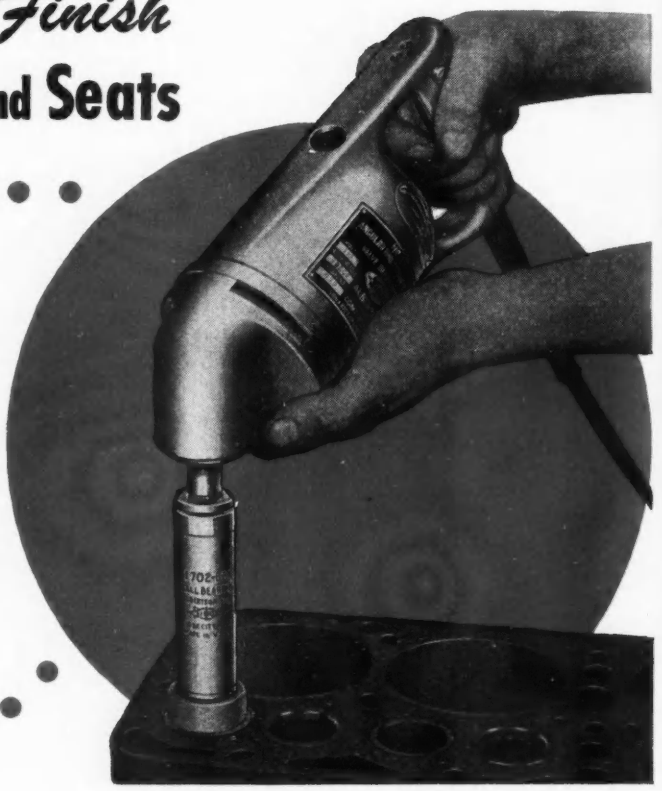
BENDIX-WESTINGHOUSE
GENUINE
AIR BRAKES
TRADE MARK REGISTERED

# the best AIR brake is

## Bendix-Westinghouse

# PERFECTLY MATCHED-

## for *Fast-Factory Finish Grinding* on Valves and Seats

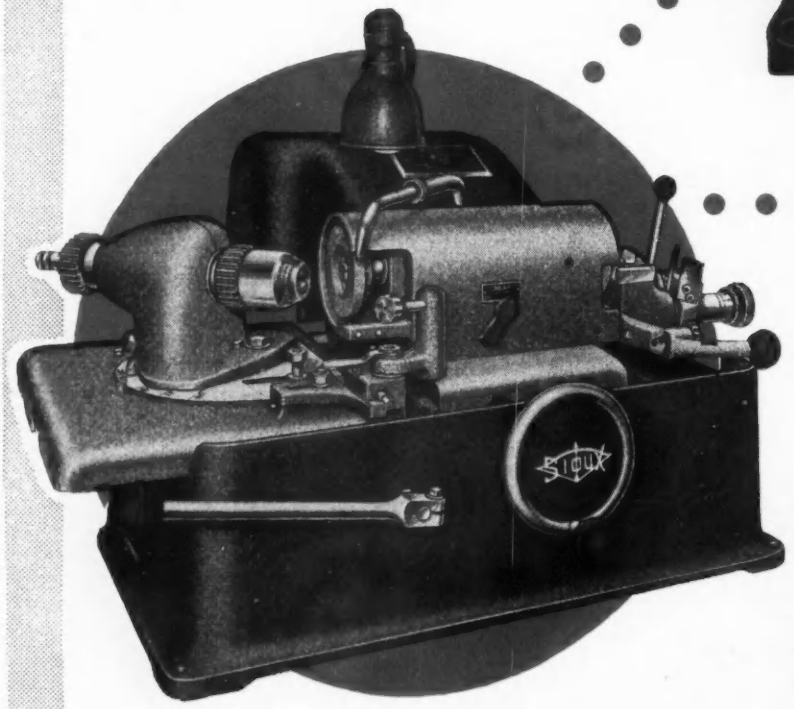


# SIOUX

**PERFECTED DUAL ACTION**

## Valve Seat Grinder with Ball Bearing Holder

Precision work in fast time is made possible by the almost unbelievable speed of this valve seat grinder. Perfected dual action provides a controlled fine vibration for grinding accuracy and dispersion of cuttings—wheel mounted for full valve seat contact. Uniform finish all the way round is assured.



*the New*

# SIOUX

**WET VALVE FACE GRINDING MACHINE**

## *More Dollar Value Than Ever Before*

Wet Grinding eliminates heat and distortion, producing finest finish and factory precision. Wet Grinds Valves, Valve Ends, Tappets and Rocker Arms.

**Sold only through authorized SIOUX Distributors**

STANDARD THE WORLD OVER

ALBERTSON & CO., INC. SIOUX CITY, IOWA, U. S. A.

# Protect Payloads...Personnel...Profits

## with the new MōPAR Jiffy Jet Windshield Washer

Here's good news! Now you can get clear vision for safe driving. The new MōPAR Jiffy Jet Windshield Washer gives positive action *every* time!

### Works in a wink at press of a toe

No fumbling—no groping! Just press *new type* control button on floorboard. Twin streams spray windshield. Wipers whisk away road film!

### Positive action all the time

New high-pressure operation keeps nozzle openings clear. Uniform spray stays strong and full, despite acceleration or hill climbing. Jiffy Jet works independently of car or truck vacuum system.

### Perfect aim at any speed

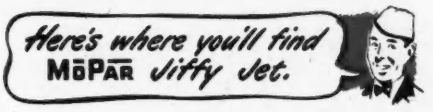
Because of nozzle location, direction, and pressure, sprays land *on* windshield, regardless of wind at fast driving speeds.

### Big, easy-to-fill reservoir

Two-quart storage jar under hood can be refilled quickly from any water hose. Small amount of MōPAR Year-'Round Washing Solvent improves cleaning.

### Easy to install

Any mechanic can install Jiffy Jet quickly and easily. Works like a charm on all Chrysler Corporation-built vehicles with V-type windshields. Get it now for low-cost insurance against road hazards.




You can obtain the new MōPAR Jiffy Jet Windshield Washer from any Plymouth, Dodge, De Soto, or Chrysler dealer.

**CHRYSLER CORPORATION**
**PARTS DIVISION**
**DETROIT 31, MICHIGAN**

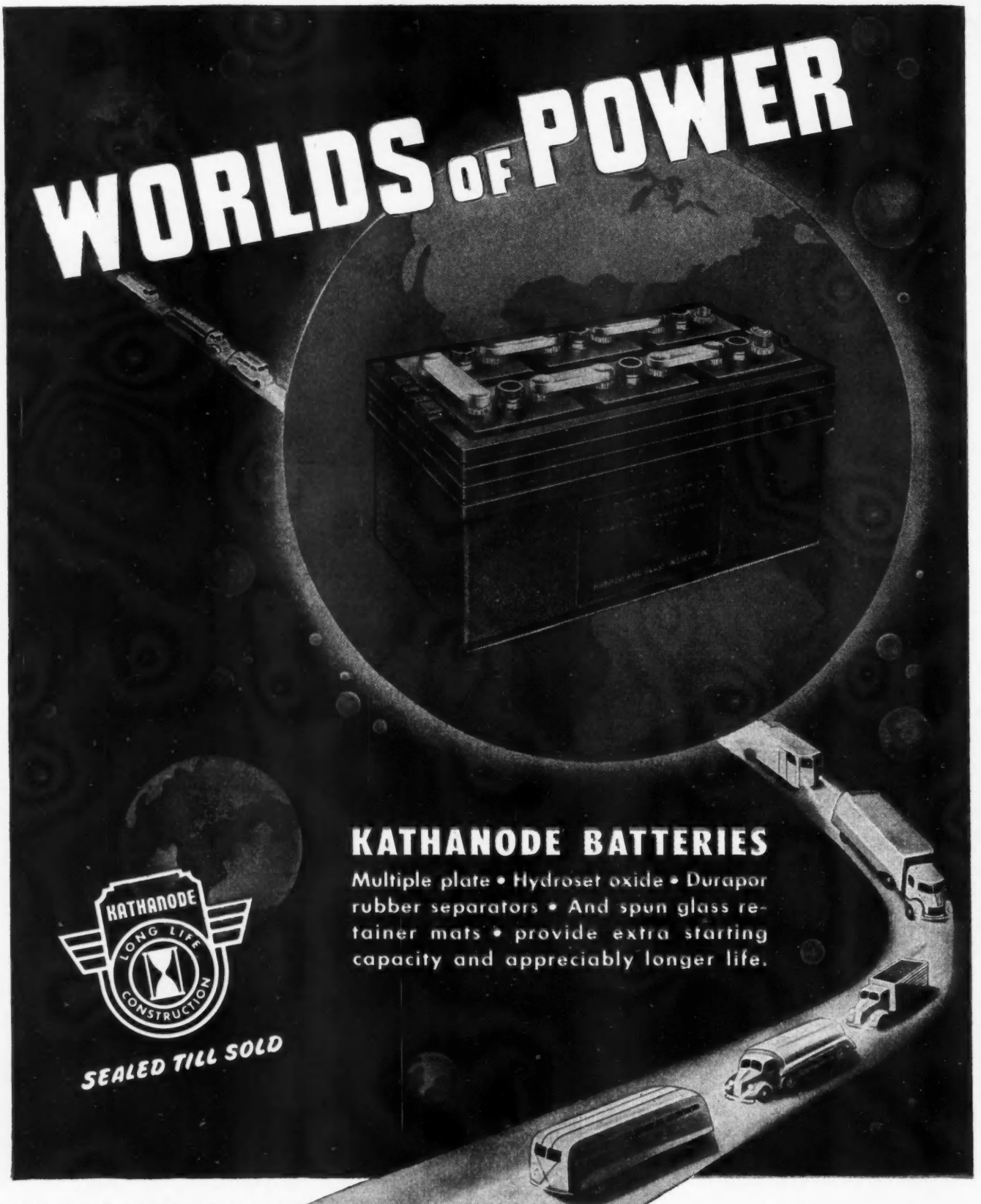
USE CHRYSLER CORPORATION PARTS DIVISION
MōPAR
PARTS AND ACCESSORIES
FACTORY ENGINEERED AND INSPECTED

# MōPAR
## JIFFY JET
## WINDSHIELD WASHER

*Approved by Chrysler Corporation Engineers for*

**PLYMOUTH · DODGE**
**DE SOTO · CHRYSLER CARS**
**DODGE "Job-Rated" TRUCKS**

# WORLDS OF POWER



## KATHANODE BATTERIES

Multiple plate • Hydroset oxide • Durapor rubber separators • And spun glass retainer mats • provide extra starting capacity and appreciably longer life.

KATHANODE LONG LIFE CONSTRUCTION

SEALED TILL SOLD

**KATHANODE** . . *The Foremost Name in Battery Construction*

## KATHANODE CORPORATION

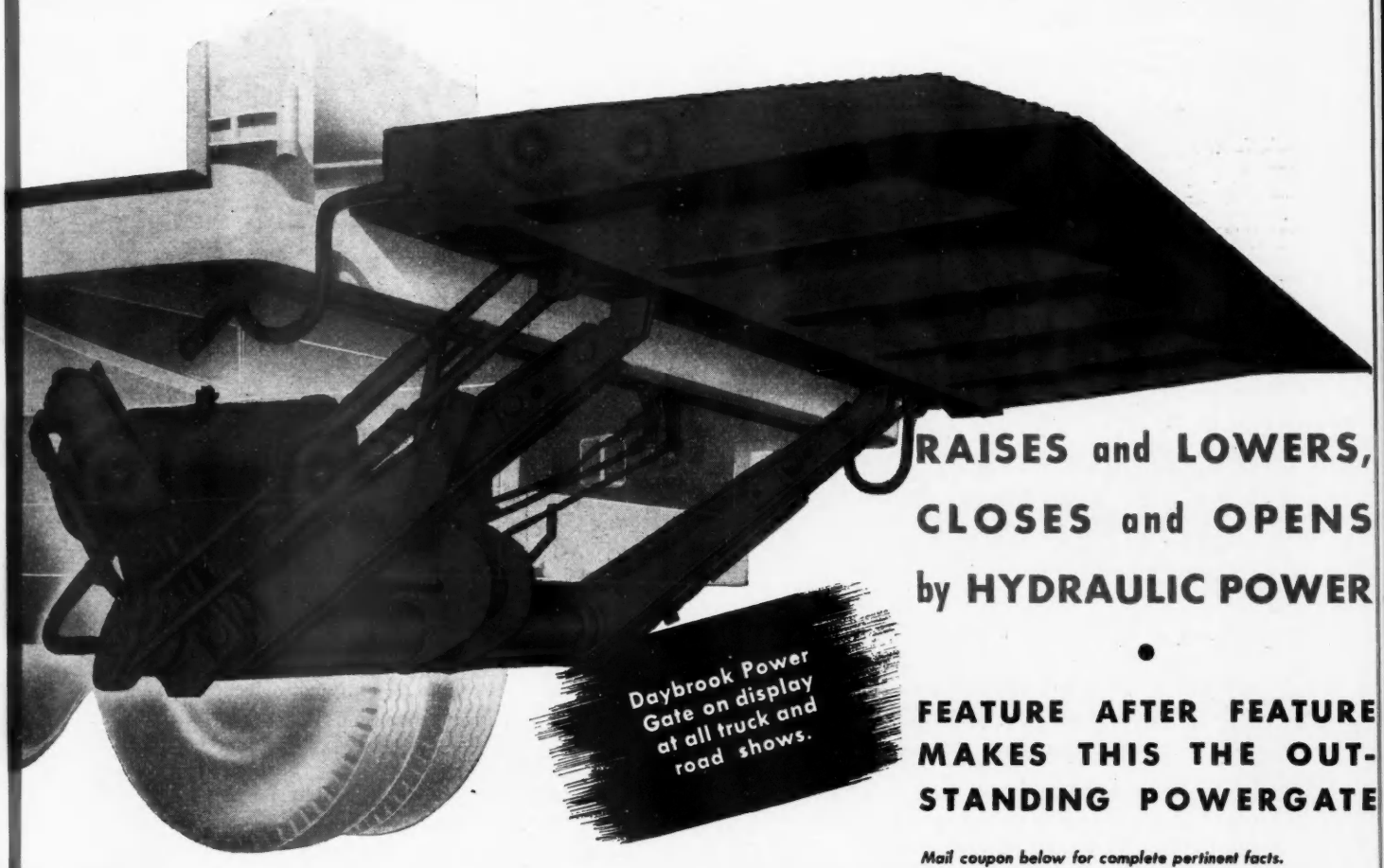
A SUBSIDIARY OF THE NATIONAL BATTERY COMPANY

E-1201 FIRST NATIONAL BANK BUILDING, ST. PAUL 1, MINNESOTA

# Introducing the "Revolutionary"

# DAYBROOK Speedlift Power Gate

## FULL HYDRAULICALLY OPERATED, 2000 LBS. CAPACITY



Daybrook Power Gate on display at all truck and road shows.

**RAISES and LOWERS, CLOSES and OPENS by HYDRAULIC POWER**

•

**FEATURE AFTER FEATURE MAKES THIS THE OUTSTANDING POWERGATE**

*Mail coupon below for complete pertinent facts.*

**THE DAYBROOK HYDRAULIC CORP.**

BOWLING GREEN, OHIO

•

Powergate produced by the makers of the famous line of Daybrook Speedlift Hoists, Steel Dump Bodies, and Coal Conveyors.

THE DAYBROOK HYDRAULIC CORP., Bowling Green, Ohio

Gentlemen: We are interested in all facts concerning the Daybrook Speedlift Powergate.

*Name* _____

*Company Name* _____

*Business* _____

*Address* _____

# The Dependable BRAKE LOCK

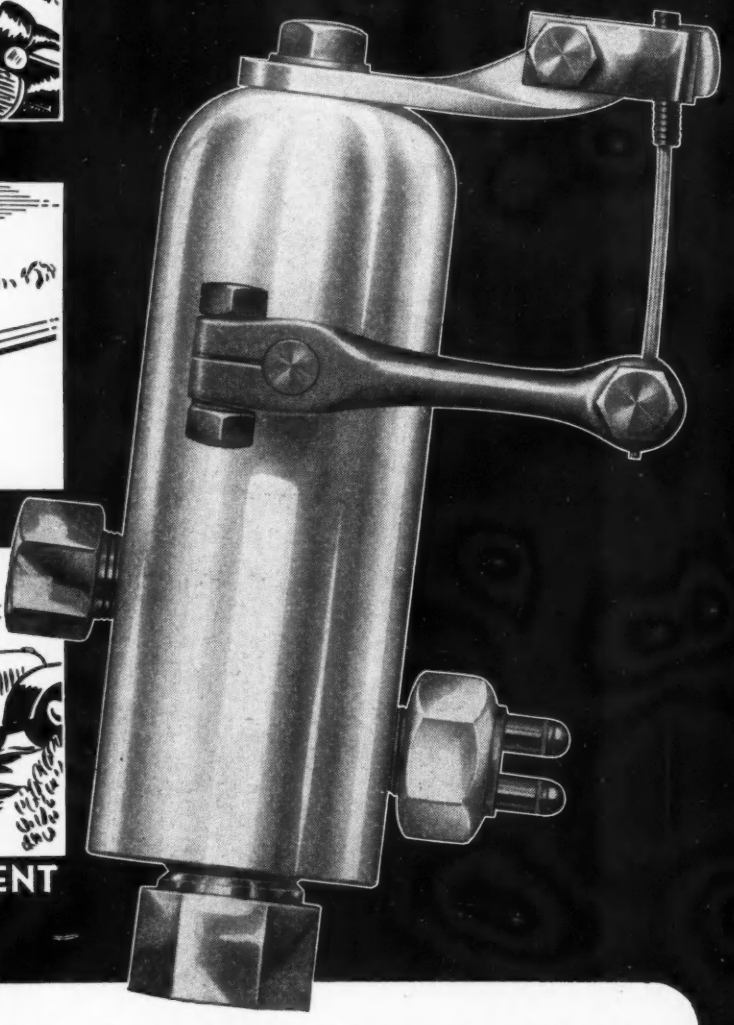
## HYDRAULOCK

## Set it - - Forget it

SAVES TEMPERS

SAVES TIME

SAVES EQUIPMENT



**A child can set the HYDRAULOCK. A giant couldn't budge the truck until the driver says "GO". It is a stubborn little all wheel brake lock (3½ inches long - 14 ounces weight) which safely applies the power of the regular hydraulic brake system to stationary lock up, and provides positive, foolproof holding action on any grade, in any position. The operator has complete, synchronized control over all stopping, holding and starting operations.**

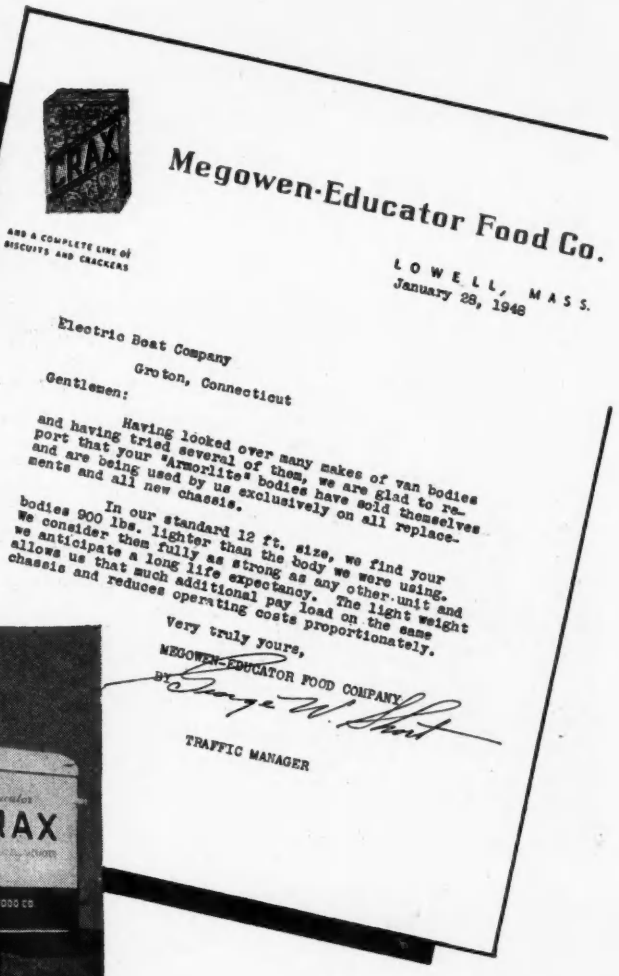
**The HYDRAULOCK is designed for all classes of service from light door-to-door delivery to heavy duty winching and dump truck operations. Installation is simple. Master cylinder mounting illustrated. Steering column mounting is optional. WRITE TO DEPT. J-2 FOR COMPLETE DETAILS.**

*Standard of Quality*

**monroe standard, inc.**

GALION, OHIO

# E·B·Co Van Panels win EXCLUSIVE use on all new chassis and replacements



CRAX

AND A COMPLETE LINE OF BISCUITS AND CRACKERS

Megowen-Educator Food Co.

LOWELL, MASS.
January 28, 1948

Electric Boat Company
Groton, Connecticut

Gentlemen:

Having looked over many makes of van bodies and having tried several of them, we are glad to report that your "Armorlite" bodies have sold themselves and are being used by us exclusively on all replacements and all new chassis.

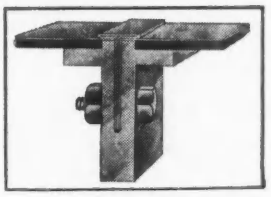
In our standard 12 ft. size, we find your bodies 900 lbs. lighter than the body we were using. We consider them fully as strong as any other unit and we anticipate a long life expectancy. The light weight allows us that much additional pay load on the same chassis and reduces operating costs proportionately.

Very truly yours,
MEGOWEN-EDUCATOR FOOD COMPANY
BY George W. Hurt
TRAFFIC MANAGER

**Aluminum-Magnesium ARMORLITE Construction Cuts Costs on Every Trip By Tremendous Savings in Body Weight**

Think of it . . . a *900-lb. saving* in the weight of a 12-ft. body, without sacrificing needed strength! Think of being able to haul that much *extra payload* on the *same chassis*, with *operating costs reduced* in proportion! The letter reproduced above, from the Traffic Manager of a great food company, is loaded with *proof* that every profit-minded truck owner can cash in on.

If you compare the new ARMORLITE van panels with other makes of bodies—compare their super-light aluminum-magnesium construction; their larger interior capacity; their beautiful modern appearance—you too will recognize the wisdom of Megowen-Educator's choice. Get the facts today. Mail the coupon below for full information on the seven models now available, from 9 ft. to 20 ft., with eight door equipment options.



**NEW WEATHER-SEAL ROOF** Cross-section detail shows new T-shaped aluminum "weather-seal" perfected for positive and permanent tightness of roof under all climatic conditions. All 1948 Armorlite bodies are equipped with this feature.

*By the World's Largest* **E·B·Co ARMORLITE TRUCK BODIES** *Builder of Submarines*

***AVAILABLE THROUGH BODY DISTRIBUTORS EVERYWHERE***

## Every body pound SAVED is a payload pound GAINED

Commercial Body Division, ELECTRIC BOAT COMPANY, Groton, Conn.

Commercial Body Division, Dept. CC-4
Electric Boat Company, Groton, Conn.

Please send full information on the new ARMORLITE van panels to

NAME.....
COMPANY.....
ADDRESS.....
.....

# CORBITT RIDES THE ROADS

WATCH THOSE heavy duty *Corbitt* Tractors and Trucks come in from that hard run . . . then ask the drivers about performance. They'll tell you about its tremendous power on those tough grades along with extremely steady motion and easy ridability . . . how it sings along the highway in all kinds of weather and about that day in and day out disregard of lay-up time, servicing and repairs.

For almost half a century *Corbitt* has built great trucks to meet the most difficult operating conditions, so that fleet owners and maintenance men have come to call the *Corbitt* . . . the fleet truck. Let us tell you about the rugged, powerful tractor or truck that holds down operating costs. Call or write now for complete information on the 18,000 pounds and up, gross vehicle weight *Corbitt*.

Corbitt
HENDERSON N.C.

"THE SOUTHS LARGEST TRUCK BUILDERS"

# *there's* SAFETY *ahead*

AND ALL AROUND
*for*
# TRUCKS

EQUIPPED
WITH

# Grote

*the Brightest Spot on the Road*

**Equip with GROTE FLAMELESS FLARES and be free of all hazards of fuel and fusees—no time delay in use—no danger of fire or explosions on the truck or in storage. Visible for half a mile. I.C.C. authorized.**

**This armor protected clearance lamp has permanently brilliant Plexiglas lens that will not fade, distort, discolor — and it's shatterproof. Made only by GROTE.**

## FLARES • LAMPS
## REFLECTORS

**You'll save repeated replacement costs when you install GROTE lamps and reflectors. You'll improve safety at highway stops when your trucks are equipped with GROTE flares.**

*The*
## GROTE
MANUFACTURING CO., INC.
BELLEVUE, KENTUCKY

# DAYTON

## *Invites You*

**To Take Advantage of**

## DAYTON MAINTENANCE SERVICE

**Reduce your tire costs and increase your profits**

***Your Local Dayton Representative is Trained.*** He knows tire construction and can lick the enemies of tire life. He can help you add thousands of miles to your present tires.

***Proved Tire Checking System.*** This complete plan, tested and easy to operate, will keep track of your tire service and costs. Tailor-made to fit your operation, with Dayton co-operation to make it pay off.

***This Service Costs You Nothing.*** Let the friendly Dayton Maintenance Service man work for you. Let him advise on recapping and servicing needs. Let him show from your own books how many dollars you can save.

***Put Thorobreds on Trial***—when you need new tires. Test them on your toughest job. These rugged truck tires, plus Dayton Maintenance Service will increase your profits and cut tire costs. See your local Dayton Distributor or write direct.

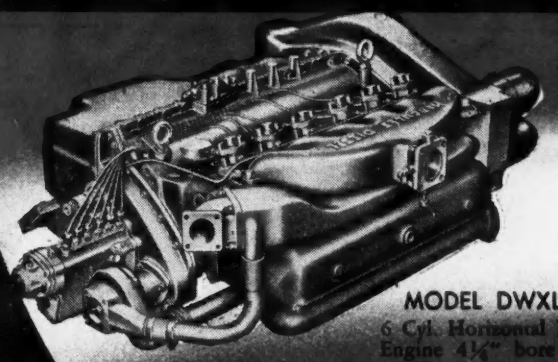
# Dayton Rubber

***The Mark of Technical Excellence in Rubber***

**DAYTON 1, OHIO**

*For*

* LOW OPERATING COST
* SMOOTH FLEXIBLE POWER
* PROVEN PERFORMANCE
* LONG LIFE

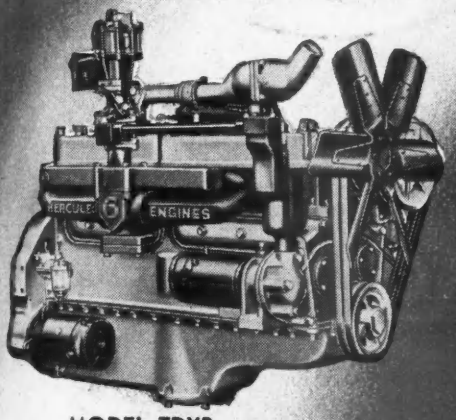


**MODEL DWXLDF**
6 Cyl. Horizontal Diesel Engine 4¼" bore x 5" stroke 426 cu. in. displacement.

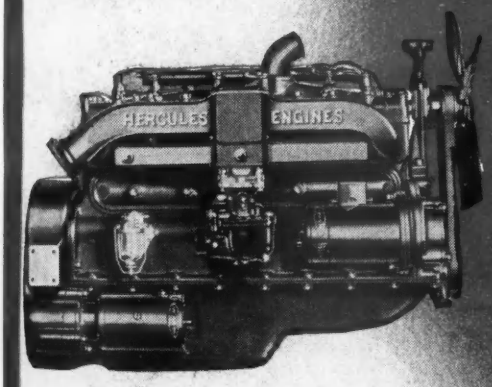
# HERCULES* ENGINES

## GASOLINE DIESEL

High speed, heavy duty Hercules Engines in both gasoline and Diesel models are available in a wide range of horsepower and cu. in. displacements to meet the diversified power needs of the Truck Industry. Built by the world's largest exclusive engine manufacturers, Hercules Engines for commercial vehicles reflect the broad experience and the "know how" that can only be acclaimed by specialists. Switch to Hercules with full confidence that they will measure up to the toughest of power assignments the Truck Industry has to offer.




**MODEL TDXB**
6 Cyl. Gasoline Engine
4⅜" bore x 5¼" stroke
474 cu. in. displacement.



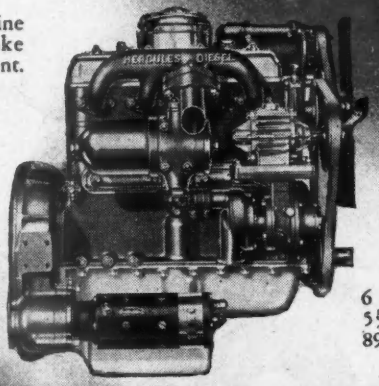

**MODEL JXD**
6 Cyl. Gasoline Engine
4" bore x 4¼" stroke
320 cu. in. displacement.

## HERCULES ENGINES 3 TO 400 H.P.

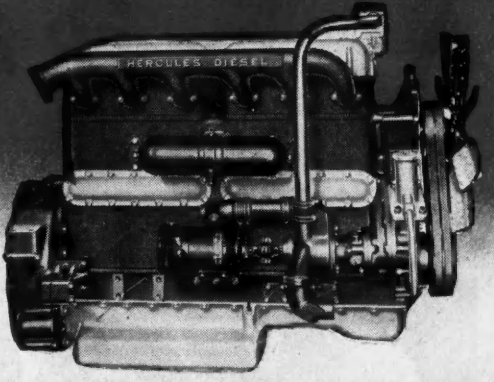
| DIESEL ENGINES | | | DIESEL ENGINES (Cont'd) | | | GASOLINE ENGINES (Cont'd) | | |
|---|---|---|---|---|---|---|---|---|
| Model | Bore and Stroke | Cu. In. Displ. | Model | Bore and Stroke | Cu. In. Displ. | Model | Bore and Stroke | Cu. In. Displ |
| **Two Cylinder** | | | DFXE | 5⅝" x 6" | 895 | **Six Cylinder** | | |
| DIXC | 4" x 4½" | 113.1 | **DFXH | 5¾" x 6" | 935 | QXA | 3⅛" x 4⅛" | 190 |
| DIXD | 4¼" x 4½" | 127.5 | **Eight Cylinder** | | | QXB | 3¼" x 4⅛" | 205 |
| **Four Cylinder** | | | DNX V-8B | 5¾" x 6" | 1247 | QXC | 3⅜" x 4⅛" | 221 |
| DIX4B | 3¼" x 4" | 133 | DNX V-8C | 6" x 6" | 1348 | QXLD | 3 1/16" x 4¼" | 236.7 |
| DIX4D | 3⅝" x 4" | 166 | DNX V-8D | 6¼" x 6" | 1468 | JXE | 3½" x 4¼" | 245 |
| DOOB | 3¾" x 4½" | 198.8 | **GASOLINE ENGINES** | | | JXB | 3⅝" x 4¼" | 263 |
| DOOC | 4" x 4½" | 226.2 | **Two Cylinder** | | | JXC | 3¾" x 4¼" | 282 |
| DOOD | 4¼" x 4½" | 255 | BXB | 2⅞" x 3" | 39 | JXD | 4" x 4¼" | 320 |
| **Six Cylinder** | | | NXA | 3" x 4" | 56.5 | JXLD | 4" x 4½" | 339 |
| DIX6D | 3⅝" x 4" | 249 | NXB | 3¼" x 4" | 66.3 | WXC-3 | 4¼" x 4½" | 383 |
| DJXB | 3½" x 4½" | 260 | **Four Cylinder** | | | WXLC | 4" x 4¾" | 358 |
| DJXC | 3¾" x 4½" | 298 | ZXA | 2½" x 3" | 59 | WXLC-3 | 4¼" x 4¾" | 404 |
| **DJXH | 3¾" x 4½" | 298 | ZXB | 2⅝" x 3" | 65 | TDXB | 4⅜" x 5¼" | 474 |
| DWXC | 4" x 4¾" | 358 | IXA | 3" x 4" | 113 | RXB | 4½" x 5¼" | 501 |
| DWXD | 4¼" x 4¾" | 404 | IXB | 3¼" x 4" | 133 | RXC | 4⅝" x 5¼" | 529 |
| DRXB | 4⅜" x 5¼" | 474 | | | | RXLC | 4⅝" x 5¼" | 529 |
| DRXC | 4⅝" x 5¼" | 529 | | | | RXLD | 4¾" x 5¼" | 558 |
| DFXB | 5" x 6" | 707 | | | | **RXLDH | 4¾" x 5¼" | 558 |
| DFXC | 5¼" x 6" | 779 | | | | HXB | 5" x 6" | 707 |
| DFXD | 5½" x 6" | 855 | | | | HXC | 5¼" x 6" | 779 |
| | | | | | | HXD | 5½" x 6" | 855 |
| | | | | | | HXE | 5¾" x 6" | 935 |
| | | | | | | *HXE | 5¾" x 6" | 935 |

** Special high output performance.

* Dual carburetion.




**MODEL DOOD**
4 Cyl. Diesel Engine
4¼" bore x 4½" stroke
255 cu. in. displacement.



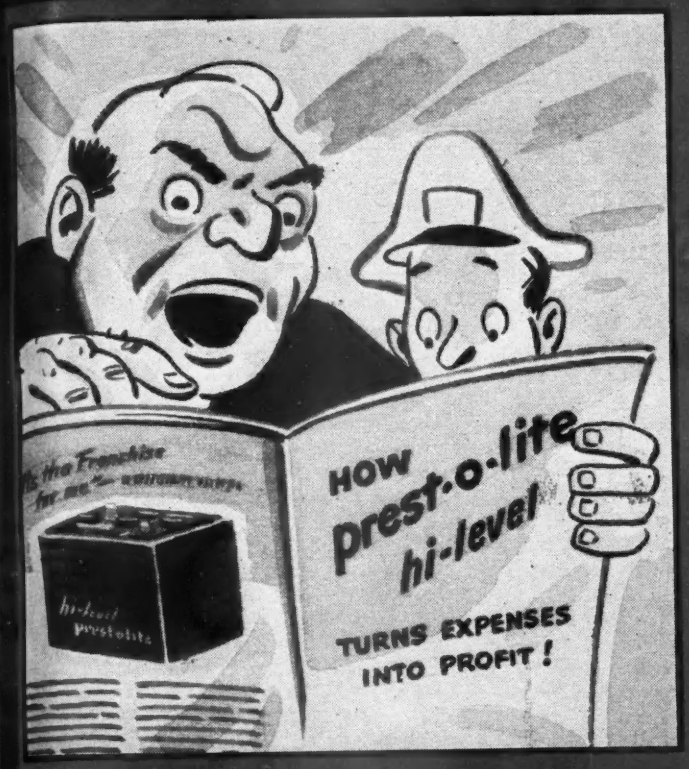

**MODEL DFXE**
6 Cyl. Diesel Engine
5⅝" bore x 6" stroke
895 cu. in. displacement.

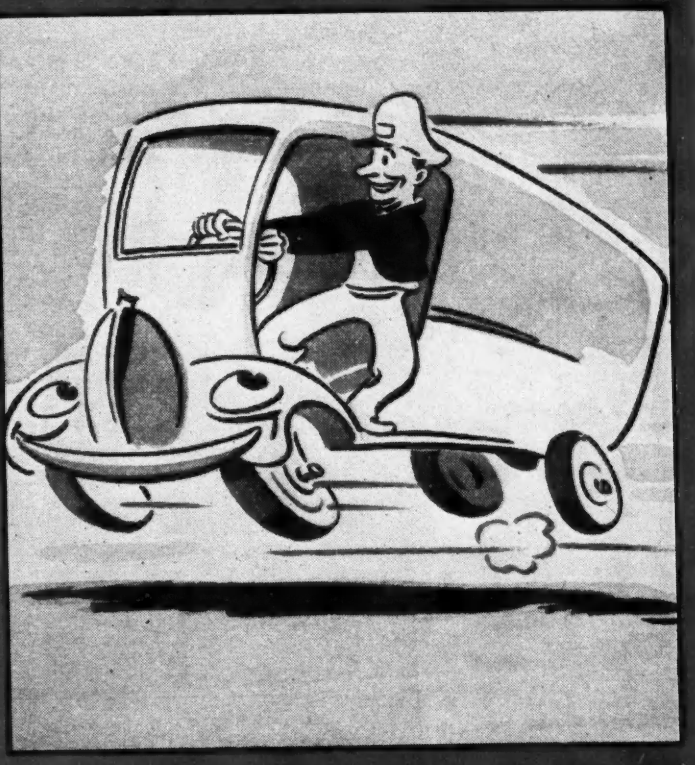
## HERCULES MOTORS CORPORATION

Canton, Ohio, U. S. A.

THERE'S A REASON
MORE FLEETS ARE REPLACING
WITH Prest-O-lite hi-level THAN
EVER BEFORE IN HISTORY

# prest·o·lite



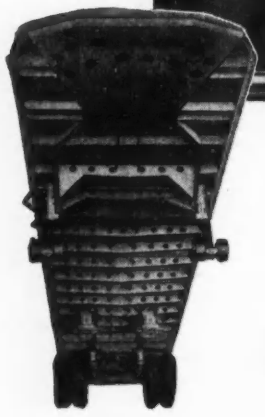



# hi-level batteries

*Add water only 1/3 as often!*

# REALLY *Tough!*

Fleet Chief DeLuxe Van Body



Balanced, lightweight, rugged understructure

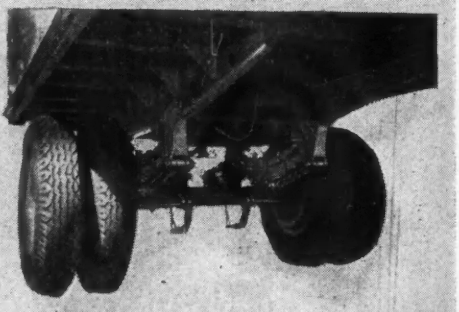
## *Lightweight.. Rugged...*

### *Engineered for Service*

The Dorsey Fleet Chief DeLuxe Van is REALLY TOUGH. Built to withstand the rough, rugged treatment of over-the-road transportation . . . constructed with the minimum of weight for greatest payload carrying capacity . . . The Fleet Chief will carry four times its own weight in freight ... a 4 to 1 ratio.

Stiff competition and rising costs make it important that every payload be a "profit load." That's why every operator needs the new FLEET CHIEF DeLuxe Van . . . the Engineered-for-Service Van with 4 to 1 payload capacity . . . low maintenance cost and long road life.

***See Your Nearest Dorsey Dealer or Write for Literature***



**Scientifically balanced, sturdy axle assembly features fully adjustable, rubber bushed radius rods for constant axle alignment . . . instant operating brakes with passenger car smoothness.**

DORSEY

## DORSEY TRAILERS

INCORPORATED

ELBA, ALABAMA, U.S.A.

MODERN *Designed* TRANSPORTATION

# OUT FRONT In Growing Demand For SALES & SERVICE!

# Flare

## HYDRAULIC BRAKE FLUID

THE SATURDAY EVENING
POST
JANUARY 3 1948 15¢
IT'S TOO BAD
. . WHEN IT'S
TOO LATE ! !
CHECK THE FLUID IN
YOUR BRAKES TODAY
Refill with Flare
Does your brake pedal feel "spongy?" Better check your brakes today! Use Flare Hydraulic Brake Fluid—it mixes perfectly with other standard brand fluids. Flare protects you against brake failures due to vapor-lock. For car beauty and care use . . . Flare! (by the Makers of WAXIDE)
Flare
BRAKE FLUID
THE BELL CO., INC.
411 NORTH WOLCOTT AVE.,
CHICAGO 22, ILLINOIS

**Over 32 million sales messages like these on Flare Hydraulic Brake Fluid in this great National Weekly—to be read by your customers! You tie-in with advertising through merchandising aids—for greater sales of Flare!**

- ★ Mixes perfectly with all original equipment and other standard brand fluids!
- ★ Will not freeze at temperatures as low as 70° F below zero!
- ★ No vapor lock, because Flare Non-Evaporating will not boil at temperatures up to 280° F. above zero!
- ★ Tests prove Flare's heavy body prevents loss of pressure due to leakage around brake piston!
- ★ Flare will not corrode brake parts or swell rubber cups; it's harmless to use!

*For Car Beauty and Care Use . . .*

*Flare!*

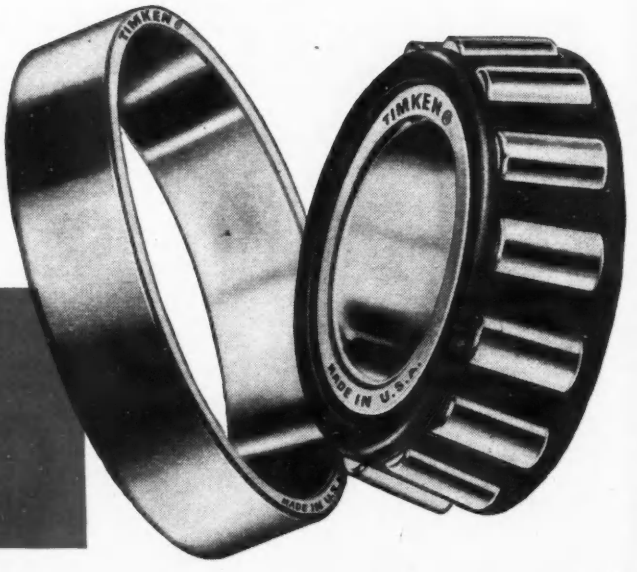
## THE BELL CO., INC.

**411 NORTH WOLCOTT AVENUE,**
**CHICAGO 22, ILLINOIS**

Another reason why
TIMKEN BEARINGS
ARE FIRST CHOICE
with truck and trailer
manufacturers
We make our own steel
STEEL & TUBE DIVISION
THE TIMKEN ROLLER BEARING COMPANY
A SPECIAL grade of fine alloy steel, produced in the steel mills of The Timken Roller Bearing Company, is used to make Timken bearings. This steel was developed by years of experience and research. And every step of its manufacture is closely controlled within the Timken Company — the only bearing manufacturer that makes its own steel.
The result is high quality alloy steel that gives special strength and endurance to Timken bearings . . . enables them to take the toughest loads. That's just one of the many reasons why Timken bearings are the number one choice of truck and trailer manufacturers from coast to coast.

# SINCE THEY'RE BEST WHEN THE TRUCK IS NEW . . . . THEY'RE BEST FOR REPLACEMENT, TOO!

**BUILT TO LAST LONGER IN TRUCKS.** Timken tapered roller bearings last longer under the heaviest radial or thrust loads, or any combination of the two. Leadership in design, our own special steel and incredible accuracy in manufacture combine to assure the dependable performance of Timken bearings. That's why it pays to look for the trade-mark "Timken" on every tapered roller bearing you buy. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



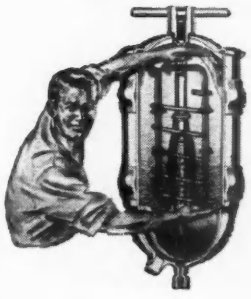

# TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

**TAPERED ROLLER BEARINGS**

NOT JUST A BALL ○ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ◎ AND THRUST →◎← LOADS OR ANY COMBINATION ✳

# in engine building approve DeLuxe Oil Filters . . .



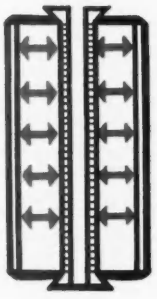
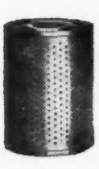


**DIAGRAM**
illustrates DeLuxe L-O-N-G oil travel from bottom to top (left) versus short side-to-center travel in other filters.



## *New* Better Oil Cleansing Cartridges for ALL Filters

"DeLuxe is now offering replacement elements for other popular makes of filters. Not another line of just "cotton packs" but well engineered, field tested, automatically wound elements of superior construction for uniform density and uniform efficiency in operation. Write for free folder."

R-2722 FOR

**Many of America's leading manufacturers of trucks, buses and engines are using DeLuxe Oil Filters as standard or optional equipment.** Their products are built upon a firm foundation of research, product investigation and tests. They have extensive facilities to check and re-check the materials, parts and accessories they use or approve. They have arrived at *one* uniform conclusion regarding oil filters—*DeLuxe's thorough oil cleansing makes it an outstanding filter for oil-saving, repair and cost-cutting service.*

A DeLuxe *longer-travel* filter is not just a "sludge catcher", it's a *Sludge Preventer.* Here's why you can use DeLuxe with confidence and profit:

In a DeLuxe, the impurities which chemists call "asphaltines" are removed from motor oil as they develop—*before* they can combine to form engine-destroying sludges or damaging piston varnish.

A DeLuxe Filter Cartridge cannot pack down and quickly become useless, for it is firmly supported by a sturdy built-in spiral spring. A metal cone feeds oil from the bottom, so it travels the *entire length* of the cartridge. Dirt and metal particles drop into a sump, where they may be removed by unscrewing a drain plug. No cartridge clog!

DeLuxe Filters are available through DeLuxe jobbers nation-wide. SEE YOURS TODAY! DeLuxe Products Corp., 1406 Lake St., LaPorte, Ind.

DELUXE *Oil Filter*
DOES MORE THAN STRAIN OIL . . . MORE THAN FILTER OIL
ACTUALLY CLEANSES OIL

New England Fleet Owner: "Installed No. 502B Rear Axle Stud Locking Rings on one of my International KS-7 Trucks. They have given me so much satisfaction that I'm going to install more on rest of my trucks. Where I had much trouble before, they have remedied the cause".

Indiana Transit Operator: "Installed set of No. 515-A Rear Axle Stud Locking Rings on a Dodge Bus. We are very well pleased with the performance of these rings and they certainly proved their merits."

Michigan Beer Distributor: "I have used your Rear Axle Stud Locking Rings for some time and am pleased with them."

Kansas Dealer: "We have installed your lock rings No. 500A on our Chevrolet Wrecker. They are doing fine!"

Richmond, Va., Fleet Owner states: "We find Champ-Items Rear Axle Stud Locking Rings do an excellent job, and save both in time and material in keeping the trucks rolling."

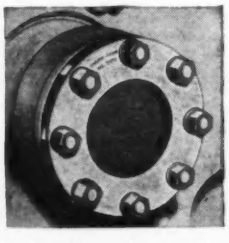
TRUCK OWNERS TELL US THEY GET

# TRUCK TROUBLE INSURANCE

WITH No. 500 SERIES

## REAR AXLE STUD LOCKING RINGS

RE-CONDITIONING CHAMP-ITEMS INC. SHORT CUTS



Lock all studs together as one unit; provide the extra bearings, stop rock at tip and your stud troubles are over.

From coast-to-coast come words of praise from satisfied users of Champ-Items No. 500 Series Rear Axle Stud Locking Rings. Thousands of sets in use, on all types of trucks, in all kinds of transportation service. Write us today for complete Specification Sheet No. 500.

Packed in individual sets of 2 lock rings—all necessary special studs—lock washers and nuts.

**List $8.00 per set. Order from your jobber.**

**CHAMP-ITEMS, INC.** 6191 MAPLE AVE. ST. LOUIS 14, MO.

The above excerpts are taken from letters in our file

# *Keeps its looks for life*

*Streamlined*
*Rustproof*

**Model No. 110**—Combination clearance and marker lamp for cab roof or any curved surface mounting. Chromium plate or high luster aluminum vehicle finish. High intensity lens — amber, red, green or crystal. Bulb 3 c.p., length 9¾", width 2¾", height 2".

● Griffin proudly presents this new clearance and marker lamp—a lamp that's both powerful and beautiful—for commercial vehicle use.

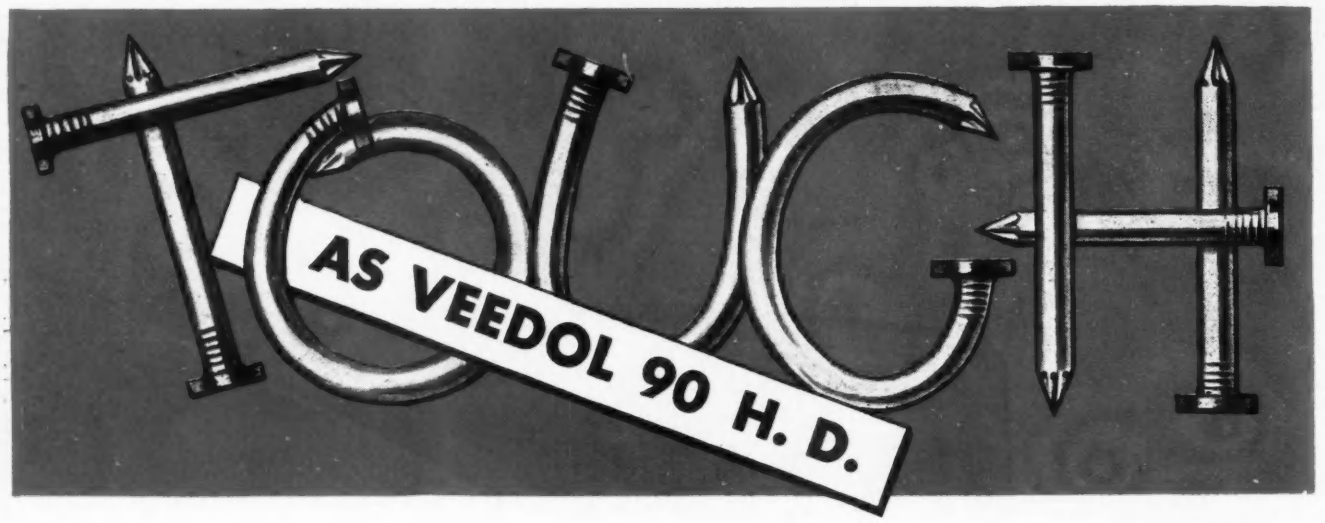
Like all Griffin products, this lamp was engineered to meet the rugged requirements of heavy-duty trucks and buses. It features certain *built-in XX safety factors*—such as the brass connector socket, for trouble-free electrical contact—which are typical of the entire line. These factors include many engineering advancements in design, materials, construction—developed to raise lighting efficiency, give more protection, lower maintenance costs.

Whatever your lighting problem, you'll find the answer in this important new lamp source. Contact the Griffin jobber nearest you, for more details.

**THE GRIFFIN LAMP COMPANY • HAMILTON, OHIO**

WITH BUILT-IN XX SAFETY FACTORS

**GRIFFIN**
**AUTOMOTIVE SAFETY LIGHTING**




How would you describe anything whose outstanding qualities are these: strength — endurance — the ability to stand up under excess punishment? The man on the street would probably say it was "Tough as nails."

You, as a fleet owner or maintenance man, might well say: "Tough . . . as VEEDOL 90 H.D.!"

Why? Because you know—

**Toughness** is the quality that enables VEEDOL to protect engines so *thoroughly*.

**Toughness** is behind VEEDOL'S amazing ability to armor fast-moving parts against heat and friction and wear so *completely*.

**Toughness** is the reason VEEDOL'S "Fighting Film of Protection" stands up under the punishment of heavy-schedule driving so *long* . . . prolonging periods between expensive overhauls!

**How come VEEDOL'S so tough? It's refined from 100% Bradford, Pennsylvania, crude** — *the finest "lube" crude in the world!*

Moreover, scientifically designed "additives" are also blended into inherently stable VEEDOL 90 H.D.

**These additives help you get full-throttle operation without ring sticking . . . without bearing corrosion . . . without lacquering of valve stems and rings.**

Think this over. If you're looking for *more* and *cheaper* miles from every unit in your fleet — with *fewer* costly repair jobs — make your *next* oil purchase VEEDOL.

Then you, too, will join the many other smart fleet operators who are quick to describe things like shoe leather and steel as "Tough . . . as VEEDOL 90 H.D.!"

# VEEDOL

## 90 H.D. MOTOR OIL

**CLEANS AS YOU DRIVE**

100% Bradford, Pennsylvania, Crude

**FULLY DETERGENT**
Keeps engine clean by minimizing sludge and lacquer formation; keeps rings and valves free.

**FULLY DISPERSIVE**
Keeps sludge, lacquer and particles of soot in suspension, so they're actually drained off with the oil.

**ANTI-CORROSIVE**
The presence of the additives in the oil assures protection against corrosion for the newer alloy bearing used in heavy-duty vehicles.

VEEDOL
OILS AND GREASES

**FEDERAL TIRES**
"GOOD FOR A LONG SAFE RIDE"

TIDE WATER ASSOCIATED OIL COMPANY

17 Battery Place, New York 4, N.Y.
Thompson Building, Tulsa 2, Okla.
79 New Montgomery Street
San Francisco 20, Calif.

# SUCH RUGGEDNESS...
## *and such precision*

Ruggedness plus precision — a Scotch highlander splitting a 1" oak stave with an arrow from his stout war bow at 40 yards.

Marvel-Schebler Carbureters give your fleet added stamina to withstand the terrific beating of constant service. They are rugged, *built strong and tough to protect the precision performance that means more efficient and economical carburetion* throughout all the miles your fleet is rolling up for your profit. Both principal bowl housings are tough zinc die castings of reinforced rib design. All moving parts *are carefully made of the strongest practical materials* and assembled in a precision unit. The bowl is tightly sealed against the entrance of dirt and grit. Automatic economizer precisely regulates fuel consumption in response to engine vacuum. Fuel trap in bottom of bowl prevents engine cut-out when rounding curves. These and other Marvel-Schebler features *assure more miles and more years of dependable carburetion* for your fleet. For complete particulars write MARVEL-SCHEBLER CARBURETER DIV., BORG-WARNER CORP., FLINT, MICHIGAN.

**MARVEL-SCHEBLER CARBURETERS**

Aero Mayflower Transit Company
GENERAL OFFICE
INDIANAPOLIS 6, IND.

August 7, 1947

Sunnen Products Company
7900 Manchester Avenue
St. Louis, Missouri

Gentlemen:

About eighteen months ago, we replaced a Sunnen LB bushing grinder with your new wet type Honing machine. We have found we can do any job with this machine that can be taken to it. Also we can get an A-1 job and precision fits. This machine is much faster than any method of which we know. The new type mandrels have eliminated the use of reamers in our rebuilding.

We are very much sold on this machine.

Yours very truly,

AERO MAYFLOWER TRANSIT COMPANY

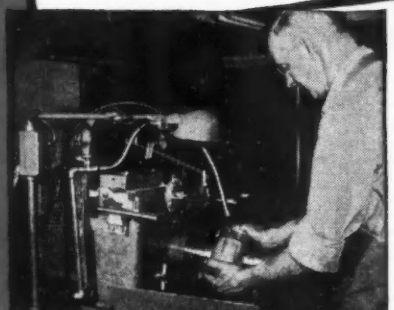
Clyde Berry

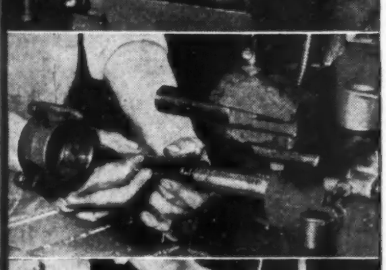
Clyde Berry
Shop Service Supt.

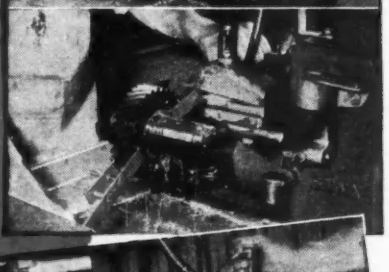
CB:er

**Clyde Berry, Shop Superintendent Aero Mayflower Transit Company Says This About the**

# SUNNEN PRECISION HONING MACHINE







**"We Can Do Any Job That Can Be Taken To It ...Get An A-1 Job and Precision Fit...This Machine Is Faster Than Any Method of Which We Know."**

Aero Mayflower operates one of the world's largest fleets of long distance moving vans. Over 700 motor vehicles are maintained in a completely equipped modern shop.

The Sunnen Precision Honing Machine is used to precision fit all piston pin holes, connecting rod bushings, spindle bodies, transmission gears, etc. The wide range of mandrels and stones permits fitting of any bushing from .480" to 2.400" in diameter with a guaranteed accuracy of .0001". The flow of honing oil doubles the speed of stock removal over previous methods of honing.

These features make the Sunnen Precision Honing Machine one of the most valuable pieces of equipment in any fleet service shop—

- **Guaranteed Accuracy to .0001".**
- **Fast Stock Removal—up to .020" per minute in bronze.**
- **Controlled Stock Removal—remove as little as .0001".**
- **Corrects Out-of-Roundness with minimum stock removal.**
- **Fine Surface Finish—produces full bearing surface.**
- **Overlapping Range of Sizes—from .480" to 2.400".**
- **Produces Perfect Alignment Between Bosses —on pistons, spindles, etc.**
- **Duplicates Sizes Easily—saves time, eliminates guesswork.**
- **Simple to Operate—change from one size to another in 1 minute.**

For unexcelled accuracy and finish, fit your bushings on the Sunnen Precision Honing Machine. See your Sunnen jobber for details.

**SUNNEN PRODUCTS CO.**

7928 Manchester Ave., St. Louis 17, Mo. • *Canadian Factory: Chatham, Ontario*

SUNNEN

Bushing Grinders • Cylinder Grinders • Crankshaft Grinders
Bearing Sizers • Rod Aligners • Valve Tools

# PERFECTION

## *the answer*—

### WHEN YOU WANT TO HAUL IN A BIG WAY

PERFECTION has the Body and Hoist combinations that will give you "full rein" --no matter how ambitious your hauling plans may be.

### SUPER BODIES

PERFECTION "Series 300" Heavy-Duty Steel Dump Bodies are sturdily constructed of 8 gauge alloy sheet steel for greatest strength. They are especially designed for the most rigorous service--heavily braced at all points of stress--and are of all-welded construction.

### SUPER HOISTS

Perfection's remarkably efficient **Iso-Draulic* ROLL-A-LIFT. The upper surfaces of the two lift arms engage two pressure rollers mounted on the body. The design is such that at the beginning of the stroke, where the lift is heaviest, the greatest leverage is provided. The result is tremendous capacity in relation to the piston displacement of this hoist. Two keeper-rollers (patents applied for) travel along the underside of the lift arm flanges, keeping the pressure rollers in constant contact with the arms regardless of body position. Write for complete information.

*Uniform pressure

**PERFECTION SERIES 300 HEAVY DUTY BODIES**

**PERFECTION NO. 827 HEAVY DUTY HOIST**

TRADE MARK REGISTERED U. S. PAT OFF

PATENTS GRANTED & PENDING

ISO-DRAULIC ROLL-A-LIFT

**THE PERFECTION STEEL BODY CO.**
**GALION, OHIO, U.S.A.**

## Why stock different types of ignition cables?

# HERE'S ONE CABLE THAT'S BETTER ALL WAYS

# PACKARD FOUR-FORTY

### IGNITION CABLE SPOOLS AND SETS

For all types of vehicles, all conditions, all climates —Packard Four-Forty ignition cable is the *right* cable for the re-wiring job. It tops all other cables in *balanced* resistance to heat, cold, oil, moisture, abrasion, corona and age. It seals-in the high voltage surge to the spark plugs more dependably and for a longer time. That's why servicemen are *standardizing* on Packard Four-Forty—eliminating the nuisance and expense of carrying several types of ignition cable. Packard Four-Forty is best by *every* test . . . and your Packard distributor has it now.

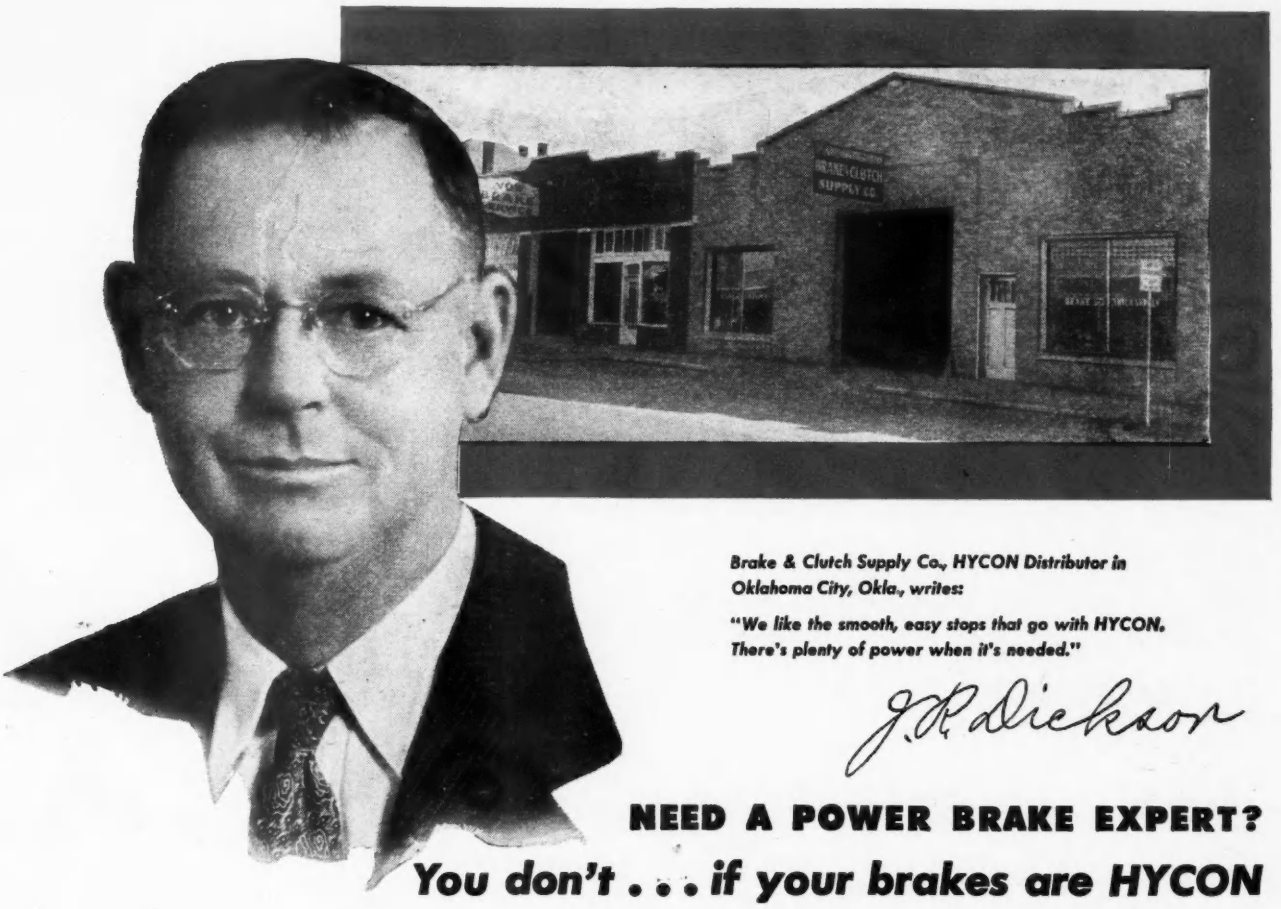
U.S.A. PACKARD — 440

THERE'S MORE MPR*
(*Miles Per Replacement)
IN PACKARD CABLE

Packard
REG. U. S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING



*Brake & Clutch Supply Co., HYCON Distributor in Oklahoma City, Okla., writes:*

*"We like the smooth, easy stops that go with HYCON. There's plenty of power when it's needed."*

J. R. Dickson

## NEED A POWER BRAKE EXPERT?

## *You don't . . . if your brakes are HYCON*

# HYCON

## *Compound* CYLINDER

**Eliminates brake lag, improves safety factor, simple and quick to install, cuts tire wear and fuel consumption, reduces maintenance.**

Any mechanic in your garage can replace a balky, defective master cylinder with a HYCON *Compound* Cylinder within an hour. Just disconnect and remove; then bolt HYCON into place. No extra tubing required; no holes to drill. HYCON is a compact, self-contained unit; amazingly simple in design, fast to install and thrifty in maintenance.

### Eliminates "Booster"—Cuts Expense

You can't have appendicitis if your appendix is removed. You can't have "Booster" trouble with HYCON, because the "Booster" has been removed. HYCON is 100% hydraulic; no need for the extra attachments for vacuum or air actuation. This cuts out brake lag and gives positive braking control at all times and under all conditions. Braking pressures are automatically in correct proportion to pedal pressures, which prevents over-braking, skidding and tire-scuffing . . . an important factor in both safety and economy.

### Test HYCON on Your Own Trucks

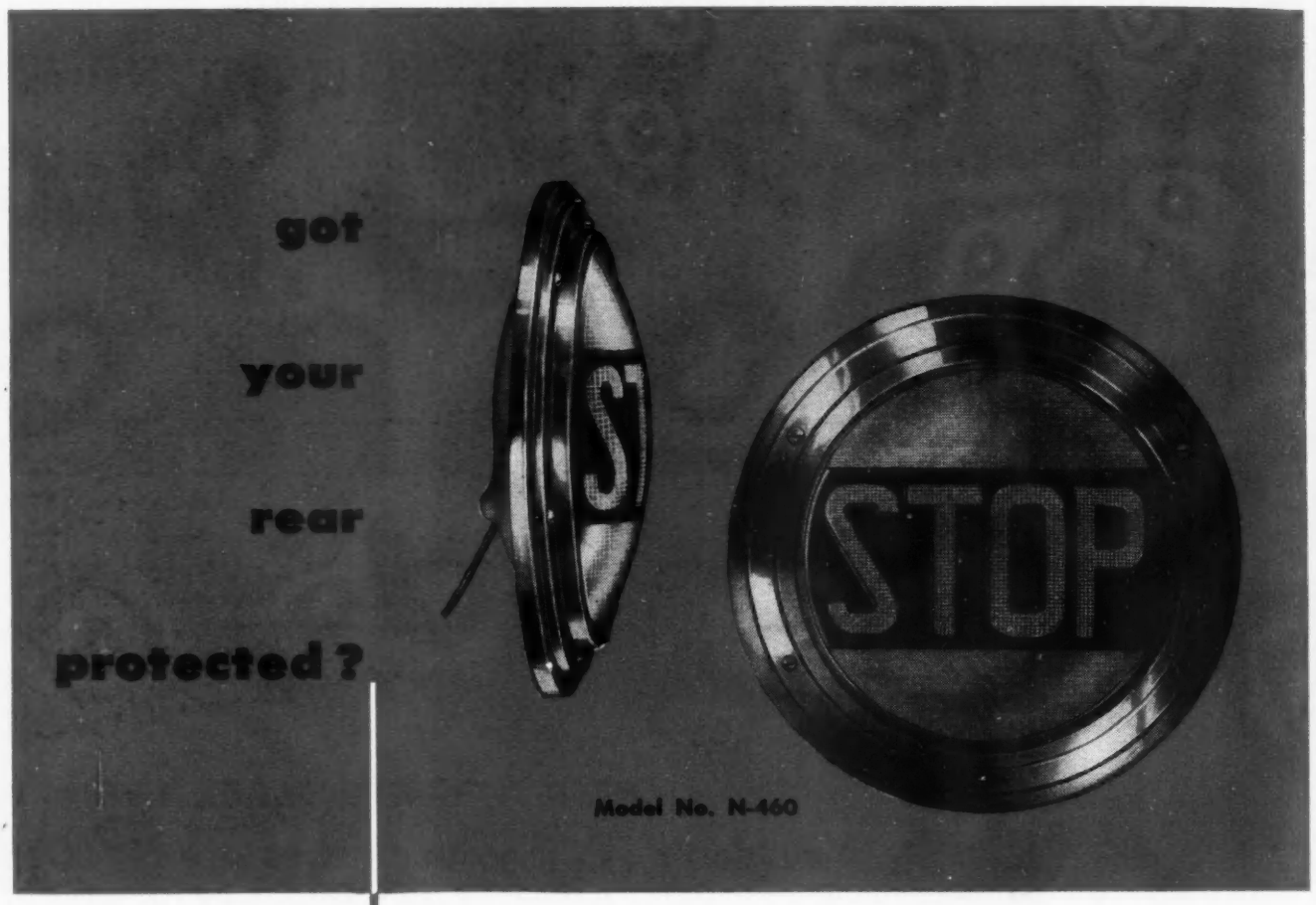
You can prove the economy and better performance of HYCON *Compound* Cylinders by installing them for a test on your own trucks. Units are now available to replace 1¼" and 1½" Di. original equipment master cylinders. Order a trial unit from your own power brake distributor or truck dealer or write to The New York Air Brake Co., 420 Lexington Avenue, New York 17, N. Y.

**COLONIAL TRADERS, LTD. • General Sales Representatives • TORONTO, ONTARIO**
**Warehouses at TORONTO Servicing the Trade Through Your Jobber**

*Look for this Registered Trade Mark*

**THE NEW YORK AIR BRAKE COMPANY**

420 Lexington Avenue, New York 17, New York




# use ARROW STOP LIGHTS

WHEN DANGER AHEAD makes you slam on your brakes, what about the danger behind? Rely on dependable Arrow Stop Lights to protect you and your cargo from the dangers you can't see. Arrow Stop Lights are big. They're bright. They spell the word S-T-O-P so even the most careless driver won't misunderstand it.

Arrow Stop Light No. N-460, illustrated above, is mounted flush with the body. The 6⅝" lens comes in either red or amber. Hinged rim for easy access to the bulb. Choice of baked-on black enamel or chromium finish.

Front to rear, Arrow lighting equipment is the best lighting for modern safety requirements. Arrow stop lights, headlights, marker lights, directional signals, reflectors and flares are well engineered, ruggedly built, designed to stand up under years of hard use. Let Arrow be your guide to greater *safety after dark*.

**Model No. N-450**
Red or amber lens. Baked-on black enamel finish. Hinged rim. Bracket suspends light under rear of vehicle.

**Model No. 42**
Flush mounting. Baked-on black or satin aluminum finish. Fluted red or amber lens.

***SAFETY AFTER DARK***

## ARROW SAFETY DEVICE COMPANY

**MOUNT HOLLY, NEW JERSEY**

ARROW

# Quixign Stencil Masks do a beautiful lettering job!

***...Says William Heine, Detroit Coca-Cola Advertising Manager.***

**"We've used Quixign Stencil Masks for many years with good results. They meet our requirements for fast, uniform, clear-cut letters. We find it's a better and easier way to letter our fleet."**

You can put over your firm name, the products that you manufacture or distribute or the service you render, with attractively designed and lettered equipment. Every truck can be a "rolling billboard".

**LET US SHOW YOU HOW!** Follow the Quixign amazingly easy method. Use Quixign Ready-to-apply Stencil Masks that can be applied with ease . . . merely place the stencil in position — rub down — brush or spray — remove stencil and the job is done. It's as easy as that and you have long lasting, good looking lettering that will outlast the body paint. We have authorized Quixign service stations in all large cities. Technical men ready to help you.

**America's largest transit companies, coach and body builders, municipal and state departments are now using the Quixign Lettering System.**

Write us today about your lettering problems. We'll give you the answer.

**ASHLEY QUIXIGN COMPANY**

ADHESIVES
STENCIL MASKS

COATED STENCIL PAPERS
PAINTS

15330 Idaho Avenue — MANUFACTURERS — Detroit 3, Michigan

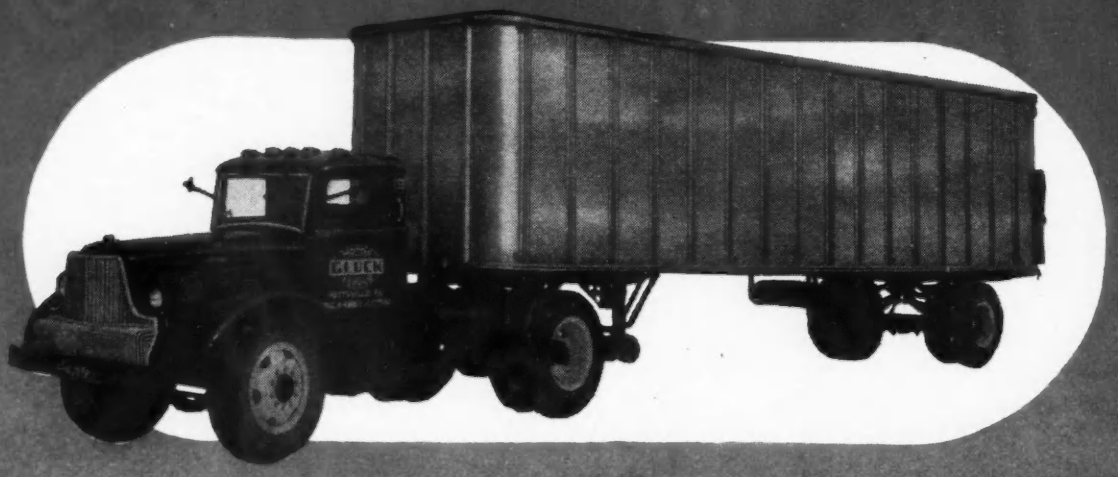
**Place in position— rub down securely**

**Spray or brush paint evenly.**

**Then remove Quixign Stencil Mask**

**—and the complete job is finished.**

# is your trailer *Built* for the job?



Gluck Motor Service, Pottsville, Penna. is another excellent example of a Transportation Success Story by Strick. ★ Gluck's problem was the need for a lightweight trailer to haul metal doors and metal door frames one way and a return load of sheet steel and bag sugar—a heavy duty hauling job. Gluck's operation now shows a 20% greater payload earning capacity with his Strick trailers.

- **Nine years' successful building of lightweight trailers has proved that Strick aluminum trailers have the strength and durability that "carry weight in trucking circles."**

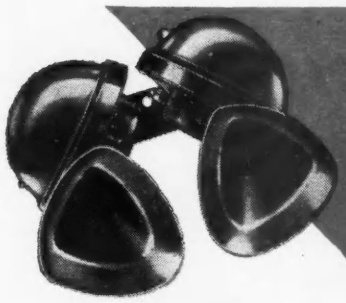
**STRICK trailers are custom *built* to your specifications for—greater payloads—longer life—less repair costs.**

**Discover for yourself the savings that prompt so many prominent fleet operators to say—**

## *Buy Strick and you buy the Best!*

For Information — Write: Strick COMPANY

PHILADELPHIA 24, PA.



46,000
SPARTON HORNS
IN 1914

3,700,000
SPARTON HORNS
IN 1947

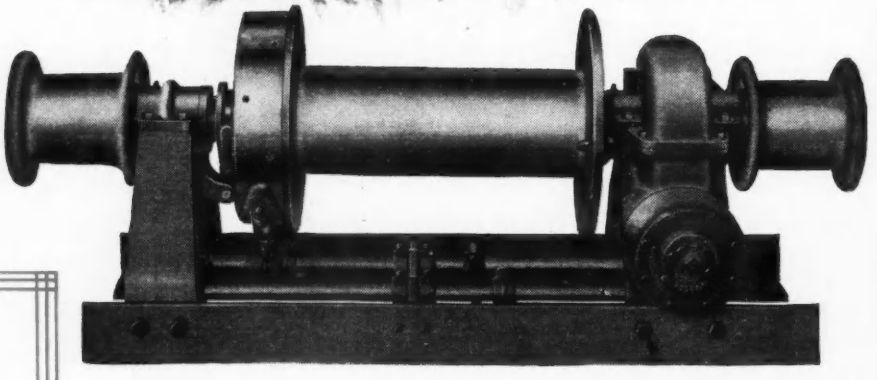
# 3,700,000 SAFER CARS

**THE SPARKS-WITHINGTON COMPANY**
**Automotive Division • Jackson, Michigan**

# An essential to modern construction

# There's a TULSA WINCH at work

All Tulsa Winches are conservatively rated, having a dependable margin of safety. All ratings based on actual tests.



**TULSA WINCHES ARE . . .**

**SMOOTH**— **In operation and performance due to advanced engineering and master workmanship.**

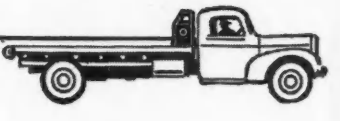
**SAFE**— **Automatic worm brake gives sure control when lifting and lowering loads.**

**DEPENDABLE**— **Materials selected for durability and designed for long service.**

**Initiated and proved under the rugged conditions of the oil fields, Tulsa Winches are being applied to all types of work all over the world. With a Tulsa Winch, one man can have the power of many horses at his fingertips right in the cab of his truck. On the farm, in construction, in the oil fields — wherever there is heavy work to be done loading, pulling, or lifting — one man and a Tulsa Winch on his truck can do it. There are models for handling loads from 6,000 lbs. to 65,000 lbs. — one to suit your needs. See your local distributor, or write direct for further information.**

**Tulsa Winch**

TULSA, OKLAHOMA DIVISION OF VICKERS Inc.



# TODAY WHAT MAKES A GOOD BRAKE BLOCK FORMULATION?

**For the modern braking systems of today's trucks and buses it takes experience—more intensive research—and the most modern type of equipment**

**And Johns-Manville meets this challenge with greatly expanded facilities in the new Research Center.**

Johns-Manville research is continuously meeting the fast-changing demands of the automotive industry for better brake block formulations that will stand up under ever-increasing speeds and faster stops.

Johns-Manville is best equipped to do this job for two reasons: (1) J-M has the most modern research facilities in the industry, (2) J-M alone offers quality control from asbestos mine to finished product.

It follows naturally that improved brake blocks . . . withstanding heavier loads, higher speeds, faster stops . . . will carry the Johns-Manville trade mark. For today as always, J-M brake blocks are delivering better performance at the *lowest maintenance cost per mile.* Johns-Manville, Box 290, New York 16, New York.

**Producers of the Famous 4-Star Fleet Tested Sets**

This photo shows the first of a series of buildings comprising the new Research Center at Manville . . . part of Johns-Manville's $50,000,000 expansion program to meet the ever-changing needs of modern industry.

**Johns-Manville**
*Asbestos*
**BRAKE MATERIALS**

JOHNS-MANVILLE JM PRODUCTS

- BRAKE LININGS
- BRAKE BLOCKS
- CLUTCH FACINGS

# SAVE

TIME...MONEY...PAINT...AIR

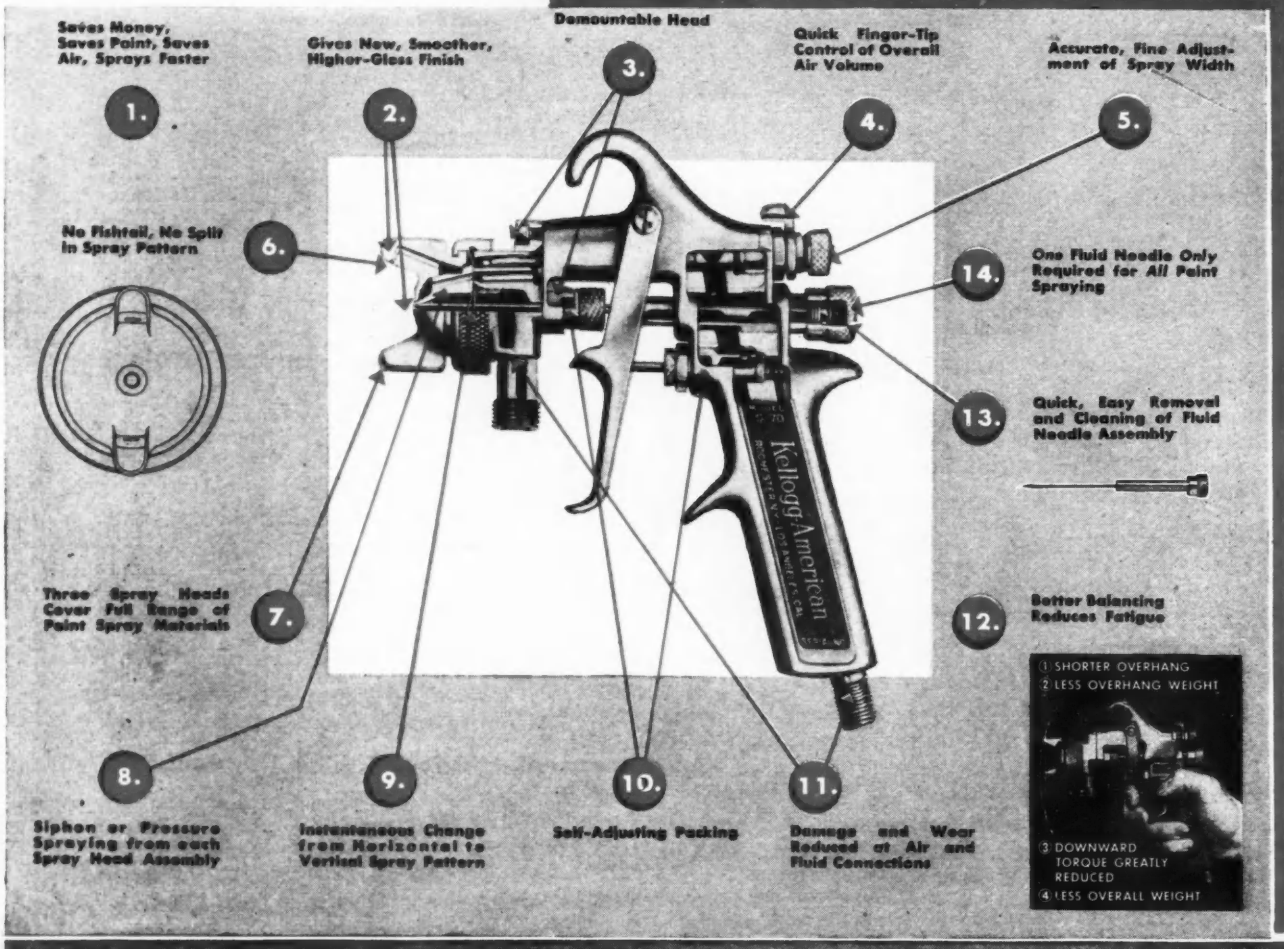
with the NEW Brake Shoe

## MICRO-SPRAY GUN

TRADE-MARK

**HERE'S HOW...**

You spray with less cubic feet of air per minute at lower pressures and use actually less paint. . . . But you get faster and more even paint distribution, and a smoother, better finish through finer atomization.


1. Saves Money, Saves Paint, Saves Air, Sprays Faster
2. Gives New, Smoother, Higher-Gloss Finish
3. Demountable Head
4. Quick Finger-Tip Control of Overall Air Volume
5. Accurate, Fine Adjustment of Spray Width
6. No Fishtail, No Split in Spray Pattern
7. Three Spray Heads Cover Full Range of Paint Spray Materials
8. Siphon or Pressure Spraying from each Spray Head Assembly
9. Instantaneous Change from Horizontal to Vertical Spray Pattern
10. Self-Adjusting Packing
11. Damage and Wear Reduced at Air and Fluid Connections
12. Better Balancing Reduces Fatigue
13. Quick, Easy Removal and Cleaning of Fluid Needle Assembly
14. One Fluid Needle Only Required for All Paint Spraying
Kellogg American
1 SHORTER OVERHANG
2 LESS OVERHANG WEIGHT
3 DOWNWARD TORQUE GREATLY REDUCED
4 LESS OVERALL WEIGHT

BRAKE SHOE MICRO-SPRAY *Alone* BRINGS YOU THESE *14* ADVANTAGES...

A PRODUCT OF

**WRITE** FOR COMPLETE INFORMATION TO...

American Brake Shoe Co., Kellogg Division, Rochester 9, N. Y.

© 1948

AMERICAN Brake Shoe COMPANY

KELLOGG DIVISION

# FLEET OPERATORS

You Save Maintenance Manhours . . . Reduce Road Breakdowns . . . Increase Profits When You Use . . .

# LINCOLN

## LUBRICATING EQUIPMENT

Regardless of the size of your fleet, efficient lubrication service is the most important factor in "Per Mile" operating cost.

The efficiency and economy of Lincoln Lubricating Equipment has proved to thousands of operators that it does help save maintenance manhours, and reduce road breakdowns—adding more revenue miles under all driving conditions.

**MODEL 346-P**
**SINGLE CYLINDER, HIGH-PRESSURE CHASSIS LUBRI-GUN**—Air-operated—Portable—100-lb. Drum Size . . . Dispenses all types of chassis lubricant direct from original 100-lb. refinery containers under high-pressure. Operation of pump is fully automatic with positive control of lubricant flow at all times.

**MODEL 435**
**GEAR LUBRICANT DISPENSER**—Air-operated—Portable—100-lb. Drum Size . . . Indispensable for quickly and economically servicing transmissions and differentials. Dispenses lubricant direct from original 100-lb. refinery containers.

**MODEL 987**
**POWERLUBER—SINGLE CYLINDER, HIGH-PRESSURE CHASSIS LUBRI-GUN**—Air-operated . . . Ideal for servicing small fleets •or as a utility unit. Dispenses lubricant direct from 25- or 50-lb. original refinery packages placed in the container, or container itself will hold 60-lbs. of lubricant in bulk. Sturdily constructed of heavy-gauge steel, this unit is dust-proof and spill-proof. Available with or without two wheel truck.

**MODEL 244**
**ELECTRIC LUBRIGUN**—Electric Motor Operated—Portable—30-lb. capacity. Equipped with positive displacement pump and powered by standard make ¼ H. P. Universal Motor for 110/115 Volt, A. C. or D. C. Ideal for small fleets where electrically operated equipment is desirable.

## *Single Units...or Complete Installations*

From single portable units, such as illustrated, to complete built-in installations—you can depend on Lincoln Lubricating Equipment to give added service life to your rolling stock. Lincoln Wholesalers are located in all principal cities and maintain complete stocks of all types of units and parts. They have factory trained service men in their shops to keep Lincoln Equipment on the job. Lincoln also has factory representatives to help you plan a complete lubrication department to meet your needs.

Trade Names: Powerlubor, Lubrigun—Reg. U. S. Pat. Off.

447-12

LINCOLN

LINCOLN ENGINEERING COMPANY • 5701 NATURAL BRIDGE • ST. LOUIS 20, MO.

*Pioneer Builders of Engineered Lubricating Equipment*

# LION NATURALUBE

## D.H.D. OIL FOR DIESEL AND HEAVY DUTY MOTORS

# Basically Different 4 WAYS*

**1 REMOVES HARD CARBON**

Nature gave Naturalube remarkable carbon-removing ability. This oil takes harmful carbon off rings, pistons, valves and plugs while the engine runs . . . cuts power-loss and wear.

**2 STRONGER PROTECTIVE FILM**

The naturally tougher film of Naturalube stands up under the heat and shock of heavy duty operation . . . provides increased protection for motor parts.

**3 GREATER PENETRATION AND ADHESION**

Naturally greater penetrative qualities assure constant lubrication of close-fitting parts. Naturalube's greater clinging power assures lubrication from the moment the engine starts.

**4 NON-CORROSIVE—SAFE**

Naturalube does not contain nor form substances injurious to bearings and other metal surfaces. It's naturally safe!

*** RESISTS FORMATION OF SLUDGE**

Lion especially reinforces Naturalube D.H.D. to make it resistant to formation of harmful sludge and lacquer . . . to keep motors cleaner.

**GUARANTEE**

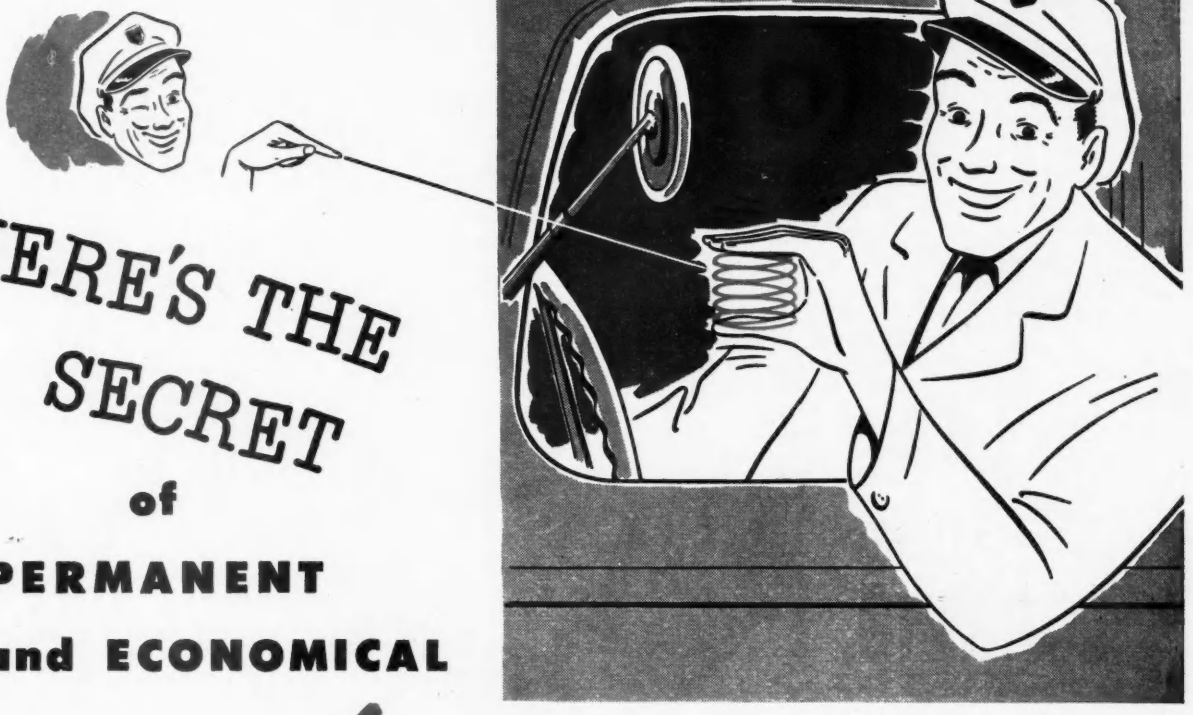
If you don't believe that Naturalube D.H.D. is the best oil you have ever used, Lion Oil Company will give you your money back!

Ask your Lion Distributor for complete information about D.H.D. or write to Lion Oil Company, El Dorado, Arkansas.

*"Petroleum Promotes Progress"*

LION

**LION OIL COMPANY, EL DORADO, ARKANSAS**



# HERE'S THE SECRET of PERMANENT and ECONOMICAL

# Comfort

● The secret of comfort in Travel Comfort Cushions* is fine steel springs. Nothing can take their place.

When you equip your cabs with ready-to-install Travel Comfort Cushions, here's what happens. You provide *sustained* comfort — reducing fatigue through hour after hour of hard driving; you install seating that you can *guarantee* for the life of the vehicle; and you handle your seating problem in the most economical and convenient way.

Travel Comfort Cushions (seats and backs) are engineered to fit your cab design. The cushion spring units are developed scientifically for the particular vehicle, are upholstered and covered by expert "tailors" with whatever materials you prefer, and are *fully guaranteed.*
All you do is set them in the job.

Travel Comfort Cushions offer a modern, practical way to handle your seating problems . . . and no other seating gives so much permanent comfort.

● FOR YOUR TRUCKS McInerney seating engineers will be glad to work with you in developing the most comfortable seating, to serve for the life of the truck.

TRAVEL COMFORT CUSHIONS
McInerney

*TRADE MARK REG. U.S. PAT. OFF.

**SPRING & WIRE COMPANY**
657 GODFREY AVENUE, S. W. • GRAND RAPIDS 2, MICHIGAN

# DURO-CHROME

## Sockets LOCK without LOOKING

Of course, your mechanics don't actually go around sticking handles into sockets blindfolded, like the Duro Pup is doing. We just want to point out that they *could* do it blindfolded easily if they used Duro Sockets.

Built into each Duro handle is a small spring loaded ball— LIKE THIS

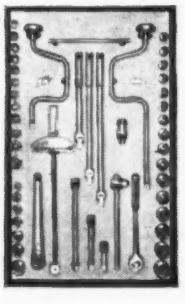
And formed into each of the four inside walls of the socket is a retaining groove to receive the ball— LIKE THIS

That means no fumbling, no time lost, no bother, in matching handles and fittings as with cumbersome single position locking devices. It means quick assembly and a *secure* fit every time, too. No slipping of *this* handle out of the socket until you decide to separate them.

Your mechanics will get the job done faster and easier with Duro's fast, sure, gripping action!

## CUT "OUT-OF-SERVICE" TIME

A mechanic is no better than the tools he uses . . . see the Duro Tool Boards at your jobbers. You'll find a complete selection of those "Doggone Good Tools" to speed-up your mechanics work. Write for the FREE Duro Catalog TODAY!

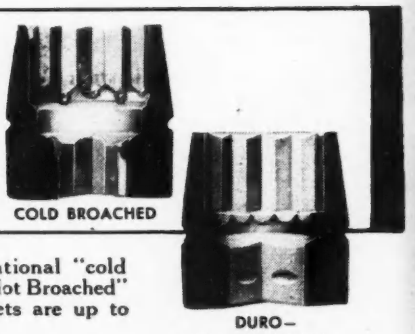


R-2896 CCJ

## doggone good tools

up to 25% stronger!

*here's the inside story*



COLD BROACHED

DURO— "HOT BROACHED"

Cross-section cuts of conventional "cold broached" socket and Duro "Hot Broached" socket show *why* Duro Sockets are up to 25% stronger.

Broaching is the term used for a machine operation which puts the "teeth" into a round socket blank, and it can be done while blank is either hot or cold. First unretouched photo, at extreme left, shows clearly the tears, stresses and cracks caused by cold broaching. These faults are not corrected by heat treating, and may cause failure of the socket.

Second photo, of "Hot Broached" Duro Socket, shows no strains, and smooth walls. This is because the metal is heated to a point where it "flows" easily, and teeth are formed without unusual stress.

*"Hot Broached" Sockets exemplify the extra durability built into all* Duro-Chrome Tools.

## DURO TOOLS (HAND TOOL DIVISION)

*The Mechanic's Best Friend*

OVER 2 BILLION BUILT SINCE 1916

ALSO MAKERS OF DURO MACHINE TOOLS

DURO METAL PRODUCTS CO., 2649 North Kildare Avenue, Chicago 39, Illinois

# a LORD VIBRATION CONTROL SYSTEM

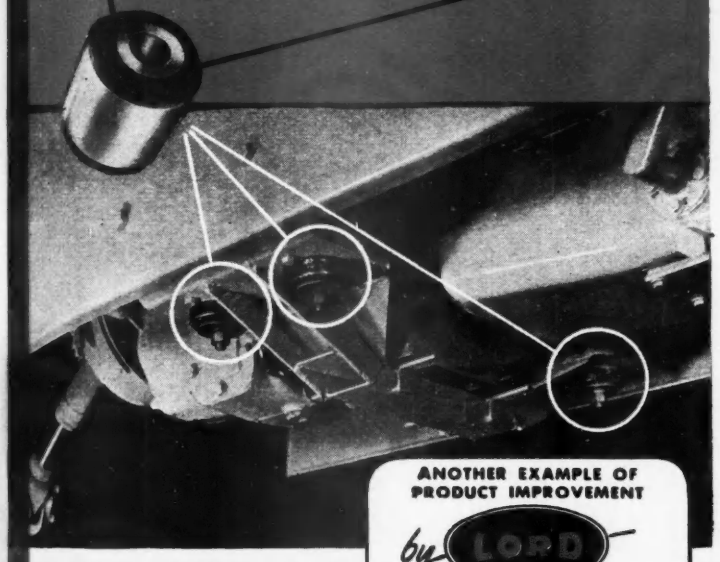
## Promotes Passenger Comfort
## Protects Engine and Bus
## *in the*
# FLXIBLE CLIPPER
## 29 B1

The same Lord Vibration Control System that gives the passengers greater comfort and pleasure also protects the power plant against road shocks, isolates engine vibration from frame and body, reduces repairs and prolongs bus life, builds goodwill for the bus company and the bus manufacturer.

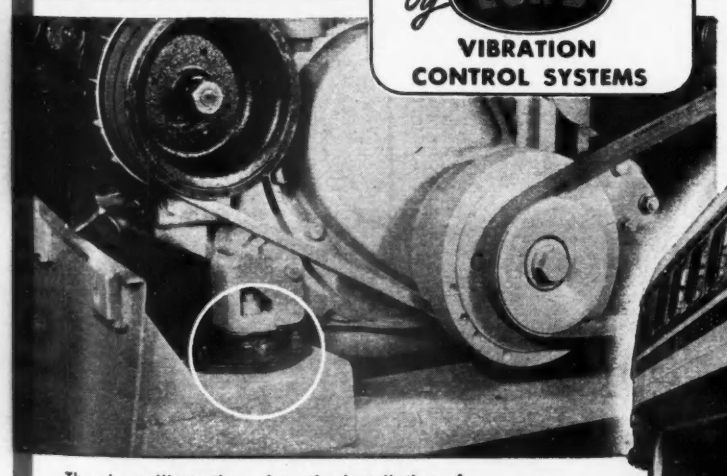
Flxible accomplishes all this by the use of six Lord Vertical Snubbing Tube Form Mountings; two dual units at the transmission and clutch end, and two single units at the fan end of the engine.

This is another illustration of the extreme importance of vibration control, and of the low first cost and long-time economy of a Lord Engineered Vibration Control System. Whether your product is as large as a bus or as small as a dial gauge, its life can be lengthened and the quality of its service improved by a Lord Vibration Control System.

*Various Bulletins available on Vibration Control Mountings, Flexible Couplings and Bonded Rubber Products. For applications providing vibration isolation regardless of direction of disturbing forces, Bulletin No. 106; for applications isolating vibration but not subject to intense shock, Bulletin No. 104; for applications involving transient shock loads in addition to vibration, Bulletin No. 103; Flexible Couplings, Bulletin No. 200-C.*



ANOTHER EXAMPLE OF PRODUCT IMPROVEMENT by LORD VIBRATION CONTROL SYSTEMS



The above illustrations show the installation of the Lord Vibration Control System.

LORD

MAKE GOOD PRODUCTS BETTER
with *Vibration Control*

LORD MANUFACTURING CO. · ERIE, PA.

Field Offices: Detroit · Chicago · New York · Washington, D.C. · Providence, R. I.
Burbank, Cal. · Philadelphia, Pa. Canadian Representative: Railway & Power Engineering Corp., Ltd.

# PUROLATOR

## *Micronic*

## Oil Filter

### *for Heavy Duty Service*

Specially designed for heavy duty service, this new Purolator Heavy Duty Micronic Oil Filter gives you more complete protection against the costly damage caused by abrasives which work into the lubricating oil when your units are in operation. It will trap abrasive particles measured in microns (.000039 of an inch). The filter element is heat-proof, warp-proof, water-proof and resistant to crankcase acids.

**PUROLATOR PRODUCTS, INC.**
Newark 2, New Jersey
In Canada: PUROLATOR PRODUCTS (CANADA) LTD.
Windsor, Ontario

**PUROLATOR**
**MICRONIC OIL FILTER**
KEEPS OIL FREE FROM ABRASIVES

*Barrett Says:*

# THEY DON'T COME TOO BIG OR TOO SMALL

## FOR THE BARRETT BRAKE DRUM LATHE

No matter what the size of the brake drum—7" to 24" diameter, up to 9" face—the Barrett Brake Drum Lathe takes care of them all. It's the only lathe engineered for both portable and stationary use—that does a fast, factory-precision job with the tires on or off—that entirely eliminates hoists or cranes for lifting heavy tire-mounted wheel assemblies off the floor. It's compact —requires no installation— one man can operate it!

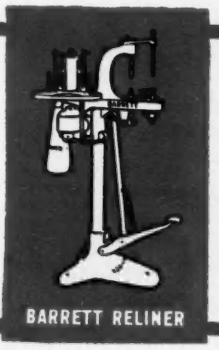
The Barrett Brake Drum Lathe gives you better, safer brakes—faster and at far less cost!

*Your Jobber Can Prove It!*

# BARRETT EQUIPMENT CO.

***The World's Finest Brake Service Equipment***

**TWENTY-FIRST AND CASS • ST. LOUIS 6, MO.**



BARRETT RELINER

BARRETT BRAKE DOKTER

## *Don't fuss around, Mr. Jones...*

# SEE YOUR FLEET IN NEW COLORS *before painting!*

### FREE COLOR VISUALIZER

Why risk making mistakes? A few seconds with a Sherwin-Williams Color Visualizer and you can see your fleet in the color combinations *you select!* Remember, 1,225 color combinations are possible!

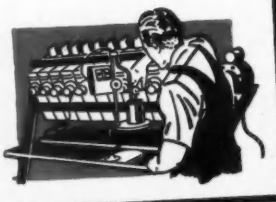
### COMPLETE COLOR SERVICE

Sherwin-Williams' Transportation Color Service consists of expert staffs ready to confer on *any* automotive finishing problem you may have.

The Sherwin-Williams O-K Distributor is equipped with a complete color mixing service. *Special* colors are factory-formulated, then referred to your O-K Distributor for your future use.

***Have your own* COLOR MIXING SERVICE**

Obtain a Sherwin-Williams Color Meter equipped with Color Key and you'll have the most complete and modern automotive color matching equipment available. Write today.



***check your* SHERWIN-WILLIAMS *OK distributor***

### SPECIFY KEM TRANSPORT ENAMEL

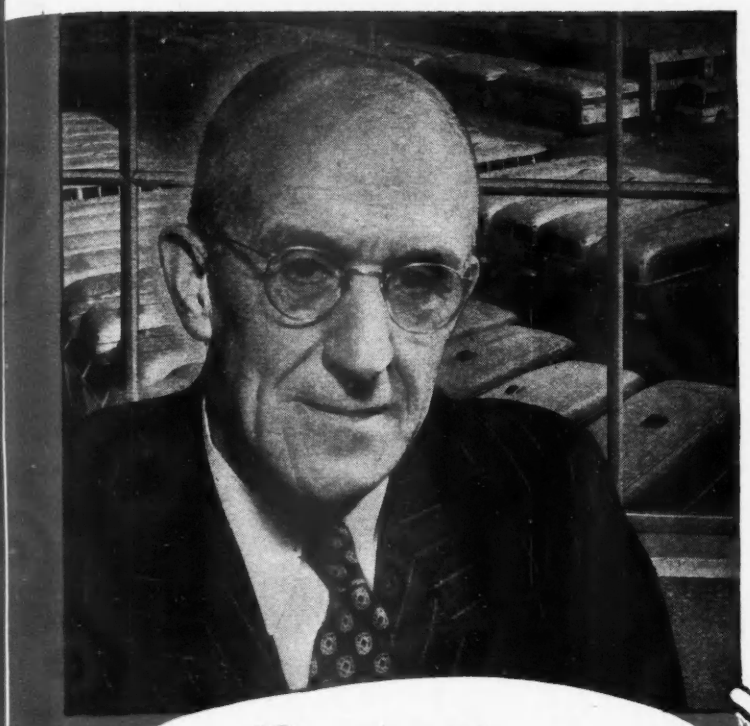
HIGHEST QUALITY Kem Transport Enamels meet the most exacting finishing requirements for commercial vehicles.

SPECIALLY DEVELOPED for all types of transportation equipment—where a fast-drying sharp high gloss and durable finish are needed.

COMPLETE line ranges from thinners, rubbing compounds, primer-surfacers, right through to the famous Kem Transport Enamels. Primarily for spray application, these fast handling enamels give the best possible finishes in the shortest possible time!

THE SHERWIN-WILLIAMS CO.
Cleveland 1, Ohio
Newark, New Jersey
Export Sales Division

**SHERWIN-WILLIAMS AUTOMOTIVE FINISHES**



# "Daytons gave me a bonus of 14,900 miles!"

• J. B. Blaiklock, Supt. of Equipment, Capital Transit Company, Washington, D. C., largest bus fleet winning Bus Transportation Maintenance Award, 1947

## Daytons averaged approximately 35,000 miles on this fleet, while survey* shows life of average bus belt is 20,100 miles!

(*"Purchasing Habits, Maintenance Methods, and Shop Equipment in the Truck Fleet Field"—Commercial Car Journal)

Yes, this is the kind of service Daytons are giving fleets all across the country. These champion milers can chalk up new records for trouble-free service with your fleet, too, for Raytex-Fortified Daytons *are stronger*—made of specially processed Dayton rayon cord.

Wherever V-Belts are needed for positive power on your vehicles, there's a Dayton Automotive Belt that delivers the kind of service you are looking for! So get this mileage bonus for your fleet. For better maintenance, for better service—get the facts on Dayton Automotive Belts from your jobber, or write direct: *Dayton Rubber, Dayton, Ohio.*

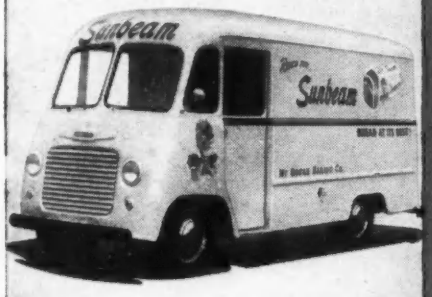
AUTOMOTIVE BELTS *by*

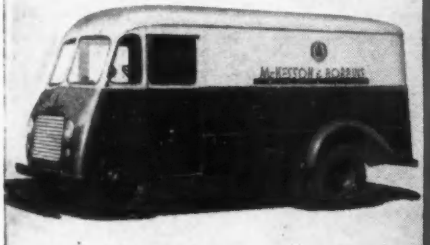
# Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

*fan and generator belts, accessory drives*

# VANETTE






## on FORD Chassis Only

•

## Sold by FORD Dealers

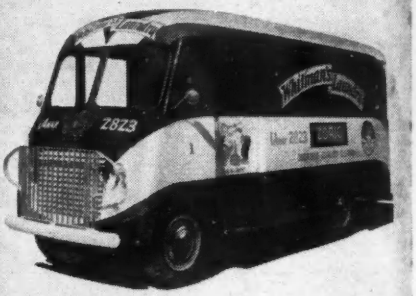
**Vanette is *big* when it's load space you're looking for! Saves driver salesmen's time; gives more stops per load and operates with Ford reliability and economy.**

***See your Ford dealer—or write Vanette for specifications.***

## VANETTE

*Incorporated*

**2447 Woodward Avenue**
**Detroit 1, Michigan**



*HELM'S NEW YORK-PITTSBURGH MOTOR EXPRESS, INC.*

Astounding? Yes . . . but astounding results can be expected when Wolf's Head Heavy Duty Oil is used . . . and sound operational and maintenance practices are followed in accord with the Wolf's Head Laboratory Control Service Plan.

That's because Wolf's Head has always kept pace with the development of heavy duty engines. Wolf's Head engineers are constantly working with engine designers to develop lubricants that will instantly match the heavy duty requirements of advanced engines as soon as they are introduced for general use. That's why Wolf's Head is always the oil for the job.

Let the Wolf's Head Laboratories prescribe the proper treatment for your fleet—a thorough, conclusive method of finding and eliminating trouble. The Wolf's Head Laboratory Control Service Plan is offered, without charge to fleet operators, for reducing operating expense. Wolf's Head Oil Refining Co., Inc., Oil City, Pa., New York 10, N. Y.

# WOLF'S HEAD

## MOTOR OIL AND LUBES

100% Pure Pennsylvania —"Premium Grade"

P.G.C.O.A. Permit No. 6



*Use postage-paid card inserted at page 137 for free information on advertised products*

# RAYTHEON

# *Radiophone*

**$395.00**
(including Fed. Excise Tax)
Complete and ready to install

**SIMPLIFIED INSTALLATION • NOISE-FREE RECEPTION**
**LOW MAINTENANCE • TRANSMITTER DIMENSIONS**
**ONLY 6" x 6 1/2" x 15" • RECEIVER DIMENSIONS**
**ONLY 6 1/8" x 4 5/8" x 6 5/8".**

## *15-watt transmitter*
## *extremely compact*
## *lowest battery drain*

*Write for complete literature and information*

## BELMONT RADIO CORPORATION

*A Subsidiary of Raytheon Manufacturing Company*

5921 W. DICKENS AVENUE • CHICAGO 39, ILLINOIS

# RED SEAL SERVICE and PARTS KEEP 'EM RUNNING

There's no question about the extra reliability that specialized Red Seal engines provide. But when, after months or even years of dependable service, a Red Seal engine needs a checkup, it's good to know there's authorized service available — that the Continental Motors service network is as broad as the nation itself.

Red Seal parts are low in cost because they're manufactured in volume. Regardless of the type of engine — tractor, truck or other — many of the parts are built by aircraft engine methods, to aircraft engine tolerances and precision standards. Wherever you are, there's a Continental dealer nearby, to back you up with complete stocks of parts and with factory-trained service. It's another reason why Red Seal engines have become America's Standard.

**Continental Motors Corporation**

MUSKEGON MICHIGAN

**CONTINENTAL**

Red Seal

**ENGINES**



*Use postage-paid card inserted at page 137 for free information on advertised products*

• • • HERE'S MORE **POWER** TO YOU • • •

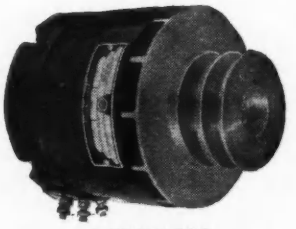
# NEW FOR TRUCKS

## ➡ A 12-Volt A-C Generating System that weighs less and delivers more current to SAVE YOU MONEY . . .

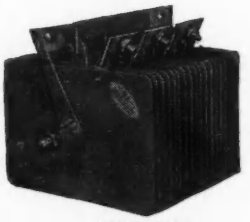
## ➡ NEED MORE POWER FROM A GENERATOR?

- **To eliminate costly battery recharging?**
- **To provide a margin of dependability and safety?**
- **To permit the unlimited use of accessories . . . even with engine idling?**
- **To support additional accessories?**

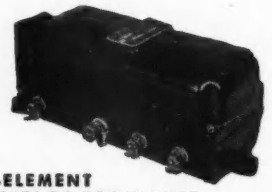
**You can't get this additional power by pushing a button or making an adjustment on a conventional D-C generator. But now you can get it from a *new kind of generating system*—a higher-output A-C system developed by Leece-Neville. Interested to the point of wanting more facts? Just write *The Leece-Neville Company, Cleveland 14, Ohio.***



**ALTERNATOR**
WEIGHT . . . . . 31 Pounds
RATING . 14 Volts–100 Amperes



**RECTIFIER**
WEIGHT . . . . . 7 Pounds
RATING . 14 Volts–100 Amperes



**3-ELEMENT VOLTAGE REGULATOR**
WEIGHT . . . . . 4¾ Pounds
RATING . 14 Volts–100 Amperes

Similar 3-unit system for 6-volt service weighs 41 pounds, rating 60 amperes—420 watts. For 12-volt service, another system, utilizing same Alternator as shown above, is rated at 60 amperes. COMING—12 volt system rated at 150 amperes.

# LEECE-NEVILLE

*Pioneer and STILL Quality Leader*

CRANKING MOTORS • GENERATORS • VOLTAGE REGULATORS • SWITCHES

# mechanics are talking about the

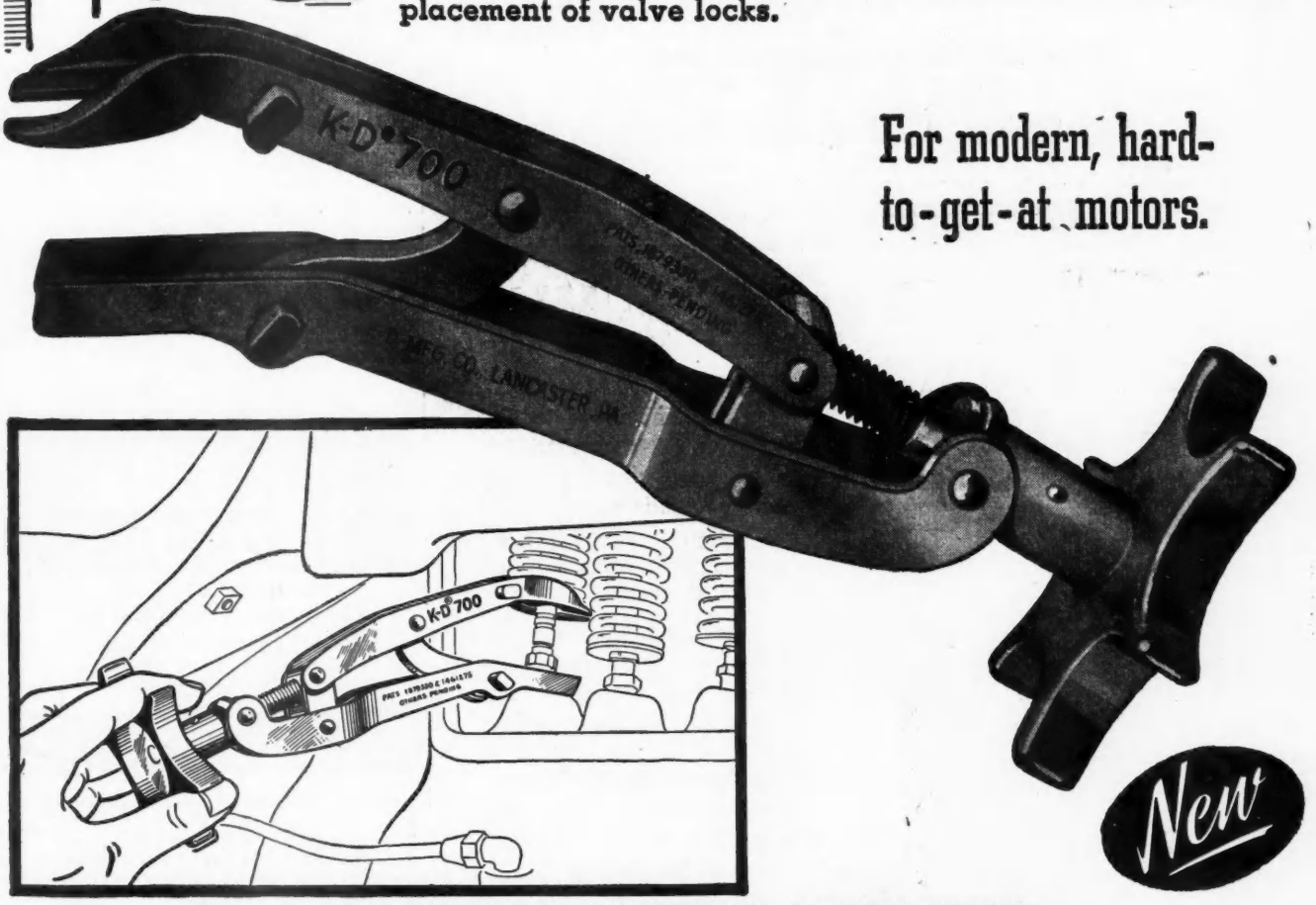
# K-D® 700

## Valve Spring Lifter

**It's *new*... and only 8" long! K-D's 700 Lifter for deep-set engines works under fenders or manifolds. Easy turning handwheel raises and lowers jaws. Locks *automatically* at any height. Simple, fast!**

**Small... the K-D 700 allows you to get at tough rear valves with one hand. Hardened jaws, adjusted with thumb screws. Designed for quick, simpler operation and easy replacement of valve locks.**

**For modern, hard-to-get-at motors.**







New

K-D MANUFACTURING CO., LANCASTER, PA., HAMILTON, ONTARIO

**K-D TOOLS – at Jobbers everywhere**

## for Cleaning prior to Overhaul

**PERMAG**

**used by big Fleet Operators**

Prior to repair work, engine tune-up, and general overhaul for commercial cars, buses and trucks, PERMAG Compounds handle all cleaning operations quickly and economically.

PERMAG Compounds are used for Degreasing—Steam Cleaning—Motor Block Cleaning—Radiator Cleaning and for efficient maintenance in plants and for equipment. *There's a PERMAG Compound for every cleaning job.*

Let us send you full details on PERMAG used in the automotive field. Write or 'phone.

**MAGNUSON**
PRODUCTS CORPORATION
**50 Court Street - Brooklyn 2, N. Y.**
Canada: Canadian PERMAG Products Ltd.
Montreal - Toronto

**PERMAG**

More than 340 Compounds are now made under the PERMAG trade name o meet the growing demands of industry.



# Another "Perfect" Hit!

## VALVE PACKING MERCHANDISER

*An active sales builder in De Luxe Cabinet form*

*At right*—Rear view, showing arrangement of stock. Cabinet may also be used for other stock.

YOU will be proud to give this smart 2-color merchandiser a prominent place in your establishment — and highly gratified by the returns it brings you in hard, cold cash profits!

These cabinets are designed for fast selling as well as high eye appeal and space saving. Each cabinet contains an assortment of 308 Valve Packings (12 numbers) to service all passenger cars, most trucks and buses on the road.

Boxes marked in bold type for quick spotting.

*Write today — or see your jobber.*

**PERFECT PARTS, INC.**
**55 AMSTERDAM AVENUE**
**NEW YORK 23, N. Y.**


## CCJ Newscast

(CONTINUED FROM PAGE 248)

### HOMETOWN NOTES

Cheyenne, Wyo.: The Cheyenne Truck Equipment Co. has opened as International Harvester dealer at 621 Central Avenue. A. W. Jensen is president of the company.

Chicago: A new Chicago branch office of the Cherry Rivet Co. at 5707 West Roosevelt Road, Cicero, Ill. Roy Schwab heads the new organization.

Cincinnati: A new International Harvester truck sales and service branch at 2901 Gilbert Avenue. H. L. Mailander is manager.

Des Moines: A new sales and service branch for Highway Trailer Co. with J. L. Schroeder in charge.

Newark, N. J.: Transportation Equipment Co., 35 Van Buren St. has acquired the Daybrook hydraulic hoist and body line.

Providence, R. I.: A new International Harvester truck sales and service branch at 275 Allens Avenue. G. K. Schmidt is in charge.

### CORBITT TO EXPAND OPERATIONS

R. J. Corbitt, Chairman of the Board of The Corbitt Co., is preparing to expand his company's operations on a national and international scale. The Henderson, N. C., manufacturer has announced that distributors and dealerships are being established in every state, and that export representation for Corbitt trucks is proceeding on parallel lines.

Now chairman of the board for the company he founded in horse and buggy days, R. J. Corbitt looks upon 1948 as another milestone in the history of his organization.

(TURN TO PAGE 380, PLEASE)


**FRINK**
*SNO-PLOWS*
REG. U.S. PAT. OFF.

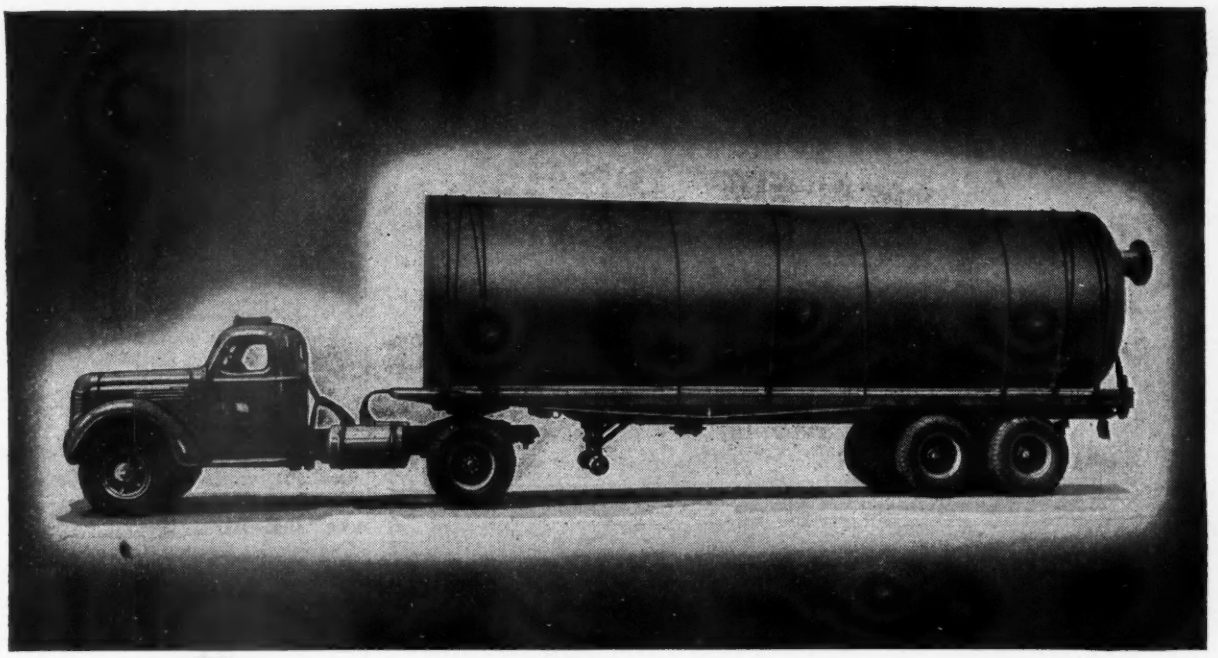
**Both "V" TYPE and ONE WAY BLADE TYPE**
*hand or power hydraulic control*
FOR ALL MOTOR TRUCKS FROM 1½ to 10 TONS

CARL H. FRINK, Mfr., CLAYTON, 1000 Isl., N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.



**HEAVY DUTY MOTOR TRUCKS**
**AND**
**GASOLINE ELECTRIC GENERATING SETS**

**DUPLEX TRUCK COMPANY**
Lansing, Michigan



# *Built* TO STAND PUNISHMENT!

If you are constantly challenged by an unpredictable variety of rugged hauling jobs you will find more than a match in a tough Kingham Platform Trailer. Kingham Platforms stand real punishment because they have that extra strength factor built in to meet the toughest assignments. Yes — by *extra tough* construction, we anticipate the added liabilities of overloading . . . loading shock . . . and increased hauling stresses over rough roads.

Kingham builds regular single and tandem axle platforms up to 54,000 lbs. G.V.W.

"Kustombilt" units to accommodate greater loads, or for hauling special equipment, will be designed for your precise need.

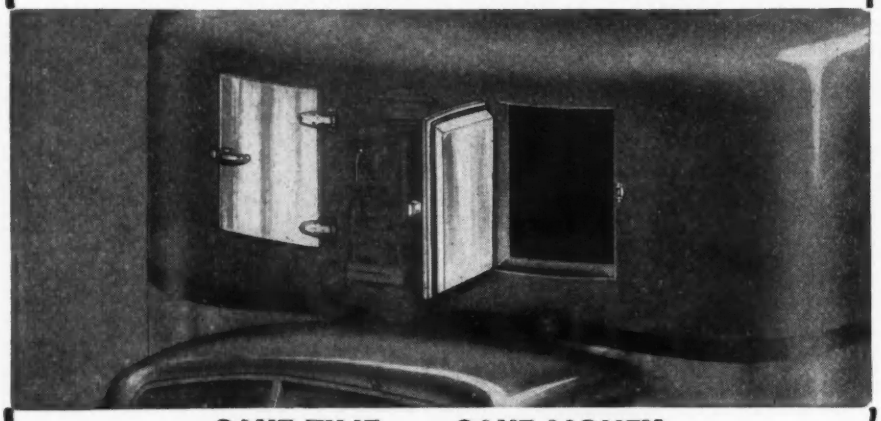
Write or wire for location of your nearest Kingham dealer.

**KINGHAM TRAILER COMPANY**
INCORPORATED
**LOUISVILLE, KENTUCKY**

NATIONAL SALES
NATIONAL SERVICE

**Kingham UNIVERSAL TRAILERS**

# D&G
# VENTILATOR DOORS
## FOR TRUCKS AND SEMI-TRAILERS



**SAVE TIME . . . SAVE MONEY**
**With Ready Built Ventilator Doors**

Using D & G Doors you can equip your Trucks and Trailers with ventilator doors in a fraction of the time required to make and install a set of hand made doors.

**D & G DOORS ARE COMPLETE AND READY TO INSTALL.** They are fully insulated and built complete with all hardware, strikes, locks and with rubber gasket around the edge for tight air seal. They are ready for tight fitting installation.

**AVOID TYING UP SHOP FACILITIES.** The speed with which D & G Doors can be installed assures quick fitting work, getting equipment back in service in a minimum of time.

IN TWO STYLES. Available curved for front and flat for back.

**DROMGOLD & GLENN** 332 South Michigan Ave., Chicago 4.



*New! Weatherproof*
# HARDCOTE
## FINISHES FOR TRUCKS · BUSSES

**BRIGHT, RICH**
**4-HOUR DRY FINISHES**
**RENEW THE FACTORY FINISH**

Now, give all types of commercial vehicles a colorful, glossy finish—that stays glossy. Sun, rain, heat and chemicals simply can't penetrate HARDCOTE 4-HOUR DRY FINISHES. Save maintenance costs. Easy to apply—easy to wash—less frequent repainting. Send for color card and information!

**McDOUGALL-BUTLER CO., Inc.**
**BUFFALO 5** *Fine Finishes Since 1887* **NEW YORK**
Branches:—Auburn, Me. · Washington, D. C. · Salem, Mass.


## CCJ Newscast

(CONTINUED FROM PAGE 378)

### MacDONALD WINS BEECROFT AWARD

Commissioner Thomas H. MacDonald has been named the Second Annual David Beecroft Memorial Lecturer by the Society of Automotive Engineers for "substantial contributions to the safety of traffic involving the use of motor vehicles."

The commissioner of the U. S. Public Roads Administration will present the lecture at a meeting of the SAE Washington Section. He will be the second of 10 distinguished Americans to be honored during this decade under terms of a bequest to the SAE by its former president, the late David Beecroft.

The nomination of "Chief" MacDonald by the SAE David Beecroft Traffic Safety Engineering Lecture Committee, of which Pyke Johnson, president of the Automotive Safety Foundation is chairman, was approved January 13 by the SAE Past-Presidents Advisory Committee.

Appointed chief of the Bureau of Public Roads of the U. S. Department of Agriculture nearly 30 years ago, the Beecroft lecturer has devoted a lifetime of energetic achievement to improving the nation's network of highways.

### TIRE PRODUCTION DOWN

Production of automotive tire casings was off slightly in January from December levels, The Rubber Manufactures Association has announced.

Production of truck and bus casings was about one per cent less, with 1,411,967 in January and 1,427,429 in December. Shipments of truck and bus tires were 1,181,928 units, as compared with December shipments of 1,246,362.

(TURN TO PAGE 382, PLEASE)

*Available* Trucks
**1½ TO 20 TONS**
**TRUCKS • TRACTORS**
**TRAILERS • BUSES**
(SINCE 1910)
TELEPHONE—BRUNSWICK 1100
**AVAILABLE TRUCK CO.**
2501 ELSTON AVE.—CHICAGO 47, ILL.

# GUNITE
## RIBBED • HEAVY DUTY
## BRAKE DRUMS

## THE REAL REASON FOR RIBS . . .

Brake drums in heavy duty service are subject to *severe flexing stresses* imposed by the pressures of the shoes, tending to stretch the drum out of shape; and high temperatures, sometimes running to over 1000°. The characteristic ribs on GUNITE Brake Drums look like cooling fins but are not. Their purpose is (1) to stiffen the drum and hold it in shape against the shoe pressures, (2) to permit the use of thinner sections and thus reduce internal compressive and tensile stresses that produce "heat check", and (3) to permit axial expansion of the braking surface at high temperatures, further tending to prevent heat check and breakage. The GUNITE rib design was developed by hundreds of gruelling over-the-road tests and its effectiveness has been demonstrated by a thousand million miles of silent proof. *Buy RIBBED Gunites for heavy duty braking!*

MADE BY
**GUNITE FOUNDRIES**
ROCKFORD, ILLINOIS

GUNITE CAST WHEEL ASSEMBLIES FOR TRAILERS AND TRUCKS INCLUDE FAMOUS GUNITE BRAKE DRUMS

# FREE TRIAL IN YOUR CAR!

GĀNE 2 MI. PER GAL.*

$1.50 EACH

Installation 25c

## GĀNE
*Air Flow Needles*

Holes for Air Flow

(Patent Pending)

**FOR CARS AND TRUCKS**
**A REPLACEMENT PART**

New quickly installed carburetor improvement. Replaces present ordinary idling adjustment screw in your carburetor to improve Fuel-Air Mixture.

**USERS REPORT***

Smoother Motor, Easier Starting, Faster Pick-Up, Better Idling; and from 1 to 4 MORE miles per gallon. BUT **YOU** TEST IT.

**WE MAKE THIS OFFER**

to any Business Firm in U. S. operating five, or more, gasoline motored cars or trucks: We will mail you GANES immediately for one test installation WITHOUT CHARGE, Cost Nor Obligation to you. You test and check results. Then, if results of YOUR test are satisfactory; and at YOUR option, we will equip your entire fleet at our expense, not a penny of cost to you, in exchange for 50%, just one half the value of the gasoline, at your price, the GANES actually saves you during the first four (4) months,

OR; we will ship you GANES at your Commercial Fleet Discount price of $1.20 per GANE NEEDLE. FAIR?

For Identification, please write us on your Business Letter Head. Specify MAKE OF CARBURETOR, and also Make of Car or Truck in which test will be made. Test GANES will be promptly mailed.

**OCTA-GĀNE**
2425 E. 57TH ST. • LOS ANGELES 11, CAL.


## CCJ Newscast

(CONTINUED FROM PAGE 380)

### GM FILM FOR FLEET SHOPS

A new sound motion picture, "Strange Interviews," has been produced by The Jam Handy Organization for the Employe Cooperation Staff of General Motors. The film concerns itself with efficiency and productivity in any truck fleet shop for harmony of relationships between boss and men, confidence in each other, and cooperation. So effectual has this film been in getting results in the Corporation's own workshops that showings (without cost) are now being arranged for groups outside its organization. The basic theme of this film is the ideas and philosophy of Ben Franklin who spoke and wrote on the subject over a hundred and fifty years ago.

This film has a running time of about 55 minutes. For details as to showings of this film address Employe Cooperation Staff, General Motors Corp., Detroit 2, Mich.

### DODGE COATS CYLINDERS

The possibility of scuffing or scoring piston rings, pistons, or cylinder walls has been greatly reduced and even better lubrication of these working parts has been effected by a protective oil-absorbing coating applied to the cylinder walls of all engines now being produced by the Dodge Division of the Chrysler Corp. This treatment is said to be especially valuable during the early break-in period of an engine Scuffing or scoring is most likely at that time and would reduce the efficient functioning and normal life of the engine.

The new chemical creates on the cylinder walls thousands of minute pockets or pores that trap and retain oil, thereby providing better lubrication. Simultaneously, the process applies to the cylinder walls a protective

(TURN TO PAGE 384, PLEASE)


# TARP WELD

Repairs tarp tears of any size in a few minutes.

A liquid material that has tremendous adhesive strength.

Applied similar to applying a cold patch to an inner tube.

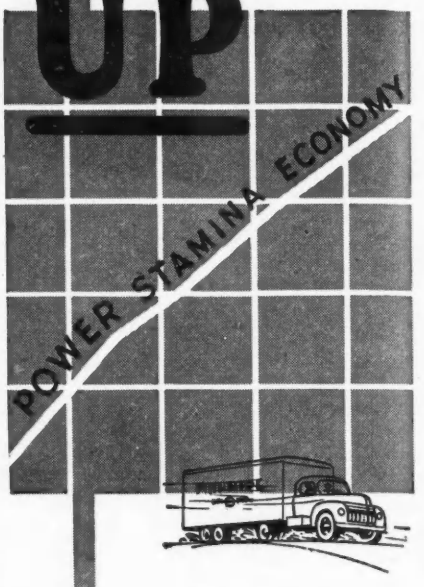
Write for information.

Use card on page.

**EXCELLO SPECIALTY COMPANY**
**4103 East 100th Street**
**CLEVELAND 5, OHIO**



# Keep *Performance on the* UP




**What It Takes—**

—to deliver POWER when you want it and the STAMINA required to **maintain** that power for thousands upon thousands of miles—

**"H" Sets Have It!**

Proof is in the popularity of "H" Sets everywhere among fleet-owners and truck maintenance men. Popular because "H" Sets are dependable . . . they do the job and do it longer at low cost per mile.

*Your jobber has them or can get them. Send to us for literature.*

**The Wel-Ever Piston Ring Co.**
**TOLEDO 1, OHIO**

*This is our 30th Year.*

RE-RING WITH **H** PISTON RING *Sets*

The WEL-EVER Line

## Increase your production 33%

*with equivalent steel tonnage*

USE **J&L OTISCOLOY**
HIGH-TENSILE STEEL

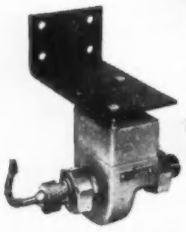
The elimination of 25% of the dead-weight of many products is possible through use of J&L Otiscoloy High-Tensile steel instead of carbon steel. Several manufacturers have taken advantage of this saving in weight and with Otiscoloy are producing one-third more units per ton than with an equivalent tonnage of carbon steel. Write for information on how to increase your unit production with less steel.

**J&L STEEL**

JONES & LAUGHLIN STEEL CORPORATION
PITTSBURGH 30, PENNSYLVANIA

better than a speedometer

safer than a governor



THE TRAFFIC EYE

CONTROLS SPEED ON YOUR TRUCKS

Yes, the Traffic Eye is better, more economical than a speedometer because it gives you better service at lower maintenance cost. It's safer than a governor because you have full power when power is needed.

Easy to install on the instrument panel, simple in operation, you can set the Traffic Eye for any desired pre-determined speeds (25-30-35 or 3-35-40). The lights go on in rotation giving your operator a constant visual check of his speed. You really *control* speeds when the Traffic Eye is operating on your trucks.

CONTROLLED SPEEDS ASSURE YOU:

| | |
|---|---|
| Lower Operating Costs | Increased Business |
| Fewer Accidents | Longer Vehicle Life |
| Lower Insurance Rates | Less Maintenance Cost |

*Fill out this coupon AB for full information:*

Please send me additional information on the Traffic Eye.

Name_____

Address_____

Position_____

THE CINCINNATI TIME RECORDER CO.
1733 CENTRAL AVE. • CINCINNATI 14 O.

## CCJ Newscast

(CONTINUED FROM PAGE 382)

oil-absorbing coating of manganese iron phosphate crystals that become chemically combined with the cylinder walls and which possess properties that prevent the flow of metal under conditions of extreme heat or pressure.

### I. P. E. TRUCK RODEO

Scores of the nation's best truck drivers will compete for valuable prizes at the International Petroleum Exposition on May 20, 1948 in Tulsa, Okla.

The Rodeo is designed to determine, through a series of stiff competitive events, the contestant's knowledge of safety, courtesy, efficiency and his skill in handling the type of vehicle used in his particular class of competition. The contestant making the highest total score for all of the events is designated the champion of his class.

Prizes totaling $2,500.00 or more will be awarded the winners.

There are five classes of competition:—Straight truck with winch. Straight truck with tank for hauling petroleum products. Semi-trailer transport with tank for hauling petroleum products. Heavy-duty oil field truck with platform semi-trailer. Heavy-duty oil field hauler with tandem semi-trailer.

Awards will be given the winner in each of the first four classes with an additional award to the operator of heavy-duty tandem trailer for a special problem in loading and unloading.

Drivers entering the contest must have had an accident-free record for the twelve months' period ending April 1, 1948. The rules and regulations governing this contest will be mailed immediately upon receipt of contestant's application submitted on official entry blank. All entries must be mailed on or before April 24, 1948.

(TURN TO PAGE 386, PLEASE)

HAVING GLASS TROUBLE?

We can solve your problems with hard to break, shatter-resistant PLEXIGLAS*, the clear plastic which is becoming increasingly popular for truck and car doors. It will last the life of the vehicle when properly handled.

The use of PLEXIGLAS in motor vehicle glazing has been permitted in some states and should be checked with your state inspector.

| Year | Make | Net Price |
|---|---|---|
| 41-47 | Ford Door | $8.45 |
| 41-47 | Chev. Door | 7.85 |
| 40-47 | Dodge Door | 7.85 |
| 37-47 | (EH) Mack Door | 10.19 |
| 37-47 | LFT Mack Door | 12.45 |
| 41-47 | White Door | 8.45 |
| 39-47 | G.M.C. | 7.85 |
| 41-46 | Studebaker | 5.40 |
| 37-47 | International | 8.83 |

Others $2.75 to $12.50. Prices on request.

Terms C.O.D. or cash with order, F.O.B. Aberdeen

ABERDEEN AUTO PARTS

Box 283-C Aberdeen, Md.

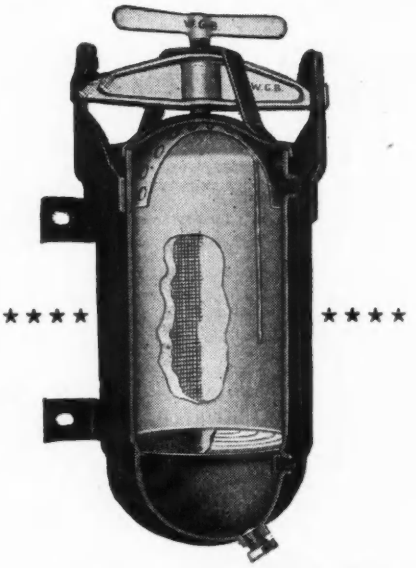
Phone Aberdeen 258

*PLEXIGLAS registered trade mark of Rohm & Haas Company.

WGB

CLAROFIERS

FOR ALL KINDS OF OIL



WGB OIL CLAROFICATION IS ECONOMY

There are nine different sizes of standard WGB Oil ClarOfiers; also, a large number of special cast-base models—making over 70 in all—which are all serviced by only 10 different sizes and styles of Cartridges! The Mack Company alone uses seven cast-base models for factory equipment. Dependable efficiency is the reason.

The results which induced Autocar, Brockway, Buda, Diamond T, General Motors, Mack Motors, and others to equip their fine motors with WGB Oil ClarOfiers were obtained by using the complete unit. It is not genuine WGB filtration unless genuine WGB Cartridges are used — substitutes cost more because they do less.

Hence, WGB Oil ClarOfiers cost less because they do more and do it longer . . . because every atom of the Cartridge is essential to filtration. WGB clarofication is the finest filtration money can buy—for lubricating and fuel oils, gasoline, and flushing and cutting oils.

WGB

OIL CLARIFIER, INC.

KINGSTON, N. Y.

# Herbrand VAN CHROME SOCKET WRENCHES

## FEEL right • FIT right • WORK right

### ★ GREATER HANDLING EFFICIENCY

Individually bench tested handle units are perfectly balanced... lightweight comfort adds skill to the hand.

### ★ STRONG THIN-WALLED SOCKETS

Unnecessary weight and clumsiness eliminated...12-point hot pierced Triple Alloy Steel, heat treated for greater strength.

### ★ VERSATILE HANDLE ATTACHMENTS

Meet all needs of most mechanics... heat treated steel for lifetime durability... lock tight to sockets... handsome finish.

**SET No. SA-72½ INCLUDES:**

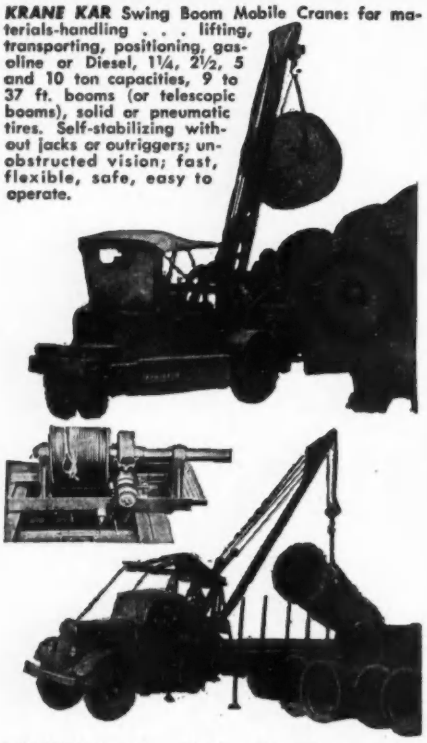
10 sizes Hot Pierced Sockets, Reversible Ratchet, Speed Handle, Sliding T Handle, 5" Extension, 10" Extension and Universal Joint. In Metal Box with ample room for additional Sockets and Handles. For complete details on this and other Herbrand Wrench Sets, see your Jobber or write us.

Herbrand
SUPER-QUALITY TOOLS
..the finest money can buy!

**HERBRAND DIVISION**
**THE BINGHAM-HERBRAND CORP., FREMONT, OHIO**

**SILENT HOIST & CRANE CO.**
Pioneer Mfrs. of
Truck Winch & Crane Equipment

***KRANE KAR*** Swing Boom Mobile Crane: for materials-handling . . . lifting, transporting, positioning, gasoline or Diesel, 1¼, 2½, 5 and 10 ton capacities, 9 to 37 ft. booms (or telescopic booms), solid or pneumatic tires. Self-stabilizing without jacks or outriggers; unobstructed vision; fast, flexible, safe, easy to operate.



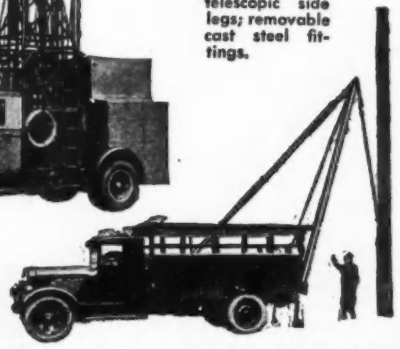


**WINCHES:** Capstans; Single and Double Drum, Jaw Clutch, Keyed and Friction Clutch Winches. 2,000 to 50,000 lb. Capacities.

**SWING BOOM CRANES:** Truck: Motor Power Operated; high capacity; takes up only a small space. For handling transformers, cable reels, lamp posts, trees, poles, manhole castings, etc. 9 to 31 ft. booms; one to 10 ton capacities.

**TOWERS:** 2 or 3 section type and Pantograph types, with plain, revolving or racking platforms.

**TRIPOD POLE DERRICKS:** for 35 ft., 45 ft., and 60 ft. Poles; single piece or telescopic side legs; removable cast steel fittings.



**USERS:** AT&T; N. Y. Tel Co.; T.V.A.; Consolidated Edison Co.; W.U.; Municipalities throughout America.

***WRITE FOR CATALOGS:***

***No. 69—KRANE KAR No. 70—Truck Equipment***

THE ORIGINAL SWING BOOM MOBILE CRANE WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER

2½, 5, AND 10 TON CAPACITIES

KRANE KAR

TRADE MARK REGISTERED

**SILENT HOIST & CRANE CO.**
852 63rd ST., BROOKLYN 20, NEW YORK



**HALLOWELL**

# *MOVABLE* TOOL STANDS OF STEEL

Fig. 1855

. . . built of sturdy steel, welded throughout and equipped with free-rolling casters, they enable you to keep your tools with you as you move from job to job. The steel drawers, as shown, can be locked—just in case. Available with two drawers, as illustrated . . . with one drawer . . . or without drawers, as you prefer. Ask for your copy of the "Hallowell" Shop Equipment Catalog.

**Write for the name and address of your nearest "Hallowell" Industrial Distributor.**

*OVER 45 YEARS IN BUSINESS*

**STANDARD PRESSED STEEL CO.**
JENKINTOWN, PA. BOX 747
BOSTON • CHICAGO • DETROIT • INDIANAPOLIS • ST. LOUIS • SAN FRANCISCO


## CCJ Newscast

(CONTINUED FROM PAGE 384)

### HORIZONS UNLIMITED

National distribution of the new highway transportation motion picture "Horizons Unlimited," is underway according to the Automobile Manufacturers Association.

The film is a 17-minute black and white sound production which traces in documentary fashion the development and growth of highway transportation in America and its impact on the nation's economy.

The National Highway Users Conference is handling the distribution of the film and prints can be obtained by contacting the Film Department, NHUC, 938 National Press Building, Washington 4, D. C.

### BUTLER REDUCES PRICE

A price reduction in Butler De-Scalers has been announced by Butler Engineering Co., New Orleans, La. The price has been cut from $4.95 to $2.95.

### N. J. TRUCK RESERVE UNIT

The War Department has authorized the activation of a Transportation Highway Transport Division to be affiliated with the New Jersey Motor Truck Association. The unit is designated as the 431st Transportation Highway Transport Division, with Colonel Arnold H. Vey as Commanding Officer. All who are interested should get in touch with the organization to learn more of the affiliated program, its purpose and the part each organization can play in future national security.

(TURN TO PAGE 388, PLEASE)


**MICRO-LINOR**

*The*
PRACTICAL
LOW-PRICED LINE OF
WHEEL ALIGNMENT
INSTRUMENTS

Micro-Linor Service Corporation
1629 West Fort St., Detroit 16, Mich.

**MILEY**
**BLACK GOLD**
*Metallized*
**BRAKE LININGS**
***are guaranteed not to score brake drums***
**L. J. MILEY COMPANY**
**18 S. Sangamon St., Chicago 7**

# "WORK-HORSE" TRAILER

Notice extra thick base rub rail (formed steel over solid hardwood) for protection of body and brake connections. Also note the extra wide landing gear spacing and full width upper fifth wheel plate.

GRAMM TRAILERS

## LET GRAMM SOLVE YOUR SPECIAL TRAILER REQUIREMENTS

Many operators have specialized hauling problems which can be solved best by a custom engineered and built trailer. GRAMM is superbly equipped to meet such specialized trailer needs. GRAMM has been producing custom trailers for many years . . . has the engineering and production "know how" to solve difficult problems at surprisingly low cost.

It will pay you to bring your special transport requirements to GRAMM. There's no obligation. And you may be surprised to learn how little it costs to obtain just the special type trailer you need to increase profits.

● From every standpoint, this "work-horse" GRAMM door to door pick-up and delivery trailer is built to "take it"! Extra heavy construction throughout to withstand practically any abuse and overcome ordinarily high maintenance costs. This GRAMM van is designed especially for localized service where its weight is no handicap . . . and its ability to take punishment pays off. It's the roughest—toughest trailer you've ever seen! Get all the facts on this van now if your operation includes local pick up and delivery service.

**GRAMM**

*A NAME FAMOUS FOR HIGHEST QUALITY IN TRANSPORT EQUIPMENT*

**GRAMM TRAILER CORP.**
**DELPHOS, OHIO**

**SOLD BY LEADING INDEPENDENT DISTRIBUTORS AND DEALERS**

# SNYDER SAFETY TANKS

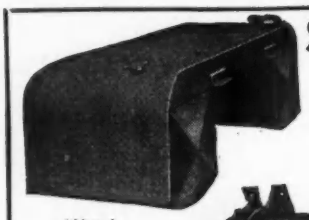
(Patents No. 2181772, 2273737, Others Pending)

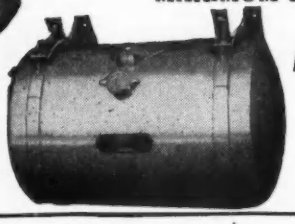
**MAKE TRUCK AND TRACTOR OPERATION SAFE & PROFITABLE**

*MAXIMUM FIRE HAZARD PROTECTION.*

**LESS REFUELING, FASTER, LONG SERVICE RUNS.**

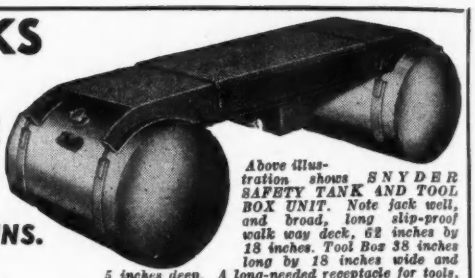
APPROVED BY THE UNDERWRITERS' LABORATORIES, INC.





(Above) SNYDER SAFETY SADDLE TANK

(Right) SNYDER SAFETY CYLINDER TANK



*Above illustration shows SNYDER SAFETY TANK AND TOOL BOX UNIT. Note jack well, and broad, long slip-proof walk way deck, 62 inches by 18 inches. Tool Box 38 inches long by 18 inches wide and 5 inches deep. A long-needed receptacle for tools, chains, power jack, danger flags, etc. Contents always handy—safe and dry.*

*For Catalog and Address of Your Nearest Distributor, Write:*

**SNYDER TANK CORPORATION** P. O. Box 2390, Birmingham, Ala. P. O. Box 14, Buffalo 5, N. Y.

THIS SPACE WAS RESERVED for advertising FLEET FORMS Cost & Service Record and related forms. However, as samples of these useful forms cannot be reproduced here, you are urged to ask for samples. The line includes, in addition to the Cost & Service Record, Preventive Maintenance Inspection Reports, Gas Pump Records, Shop Repair Orders, Driver's Reports, Service Orders and Reports and many others of which the ACCIDENT REPORT is newest. For your free sample package please address:

*Fleet Forms*

BOX 793, COLUMBUS 16, OHIO

OLTMAN-O'NEILL

*all-steel, all-welded*

**VAN TYPE BODIES**

and Packettes — America's most outstanding Truck Body values — are immediately available. Sold through dealers only. Write or wire for franchise data.

**OLTMAN-O'NEIL COMPANY**

5171 Martin Ave., DETROIT, MICH.

NEW LOW COST

**DRILL GRINDER**

Anyone can do expert drill grinding with this simple-to-use drill grinding attachment—fits on any bench grinder—saves buying new, twist drills—saves time and materials that dull bits waste. Grinds bits from 3/16 to 1¼.

**WRITE** for FREE literature.

**T & H MFG. CO.**

811-N East 31st K. C., Mo.


## CCJ Newscast

(CONTINUED FROM PAGE 386)

### NEW ICC CITY ZONES

The ICC has recently prescribed specific boundaries for the commercial zones of certain important cities and extended the application of its previously-established general formula for the determination of such zones in certain other areas which were specifically excepted by the Commission's original report.

The current order, dated March 23 and effective June 1, 1948, prescribes boundaries constituting the respective commercial zones of the following cities: Albany, Baltimore, Cleveland, Detroit, Minneapolis, and St. Paul, New Orleans Pittsburgh, Portland, Ore., Seattle and Vancouver.

(TURN TO PAGE 390, PLEASE)


**DUNK 'EM IN GUNK H-S**

COMPLETE DECARBONIZING PROCESS IN PACKAGE FORM

IMMEDIATE DELIVERY

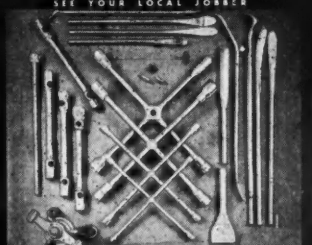
1 GALLON OR A TANK CAR

CURRAN CORP. LAWRENCE, MASS.

DESIGN LATEST QUALITY UNQUESTIONED

SEE YOUR LOCAL JOBBER

KEN KEN



KEN-TOOL MFG. CO. AKRON, O.

LARGEST EXCLUSIVE MFGR'S OF SPECIALIZED WHEEL AND TIRE CHANGING TOOLS KNOWN AND USED AROUND THE WORLD

**STRETCH Your OIL ENGINE RING Life**

WITHOUT DISASSEMBLY

**RUNZIT**

A CARBON REMOVER

Money Back Guarantee

TRIAL ORDER

2 Gal CAN $6.66

ENOUGH IN THIS TRIAL SIZE TO DO 4 COMPLETE MOTORS (4 ENGINES-7 QT. CAPACITY)

SOLRUN SERVICES, Inc.

49 North Second St., Philadelphia 6, Pa.

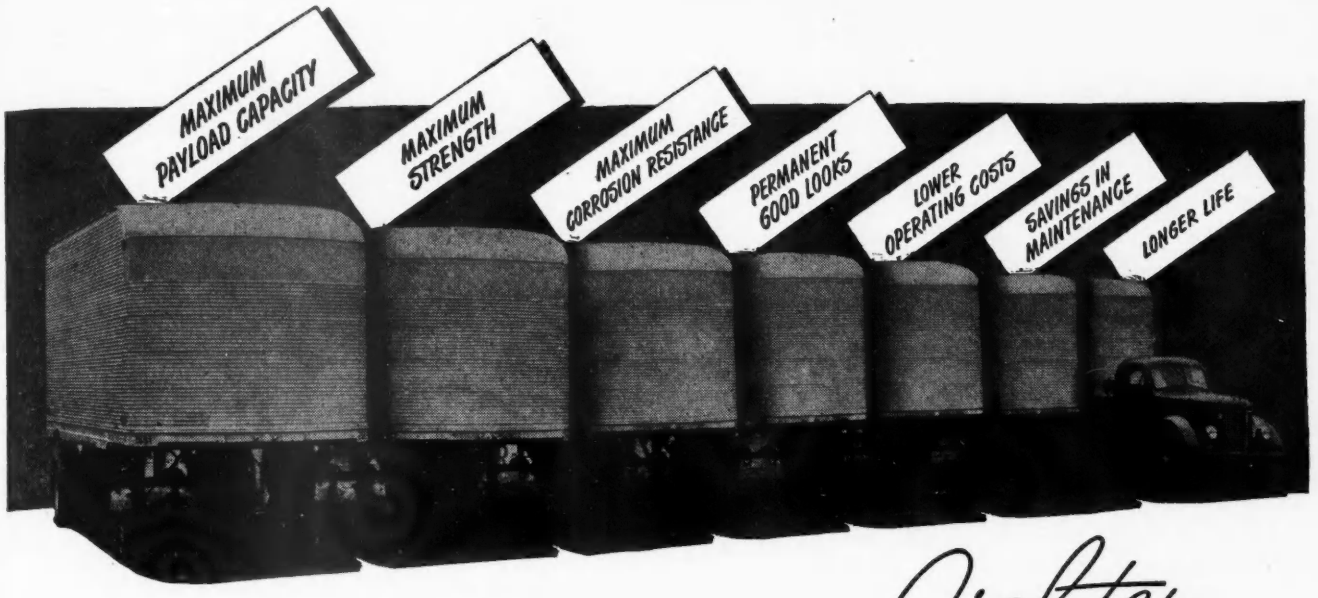
REPRESENTATIVES SOLICITED

**AIR-O-MATIC POWER STEER CORPORATION**

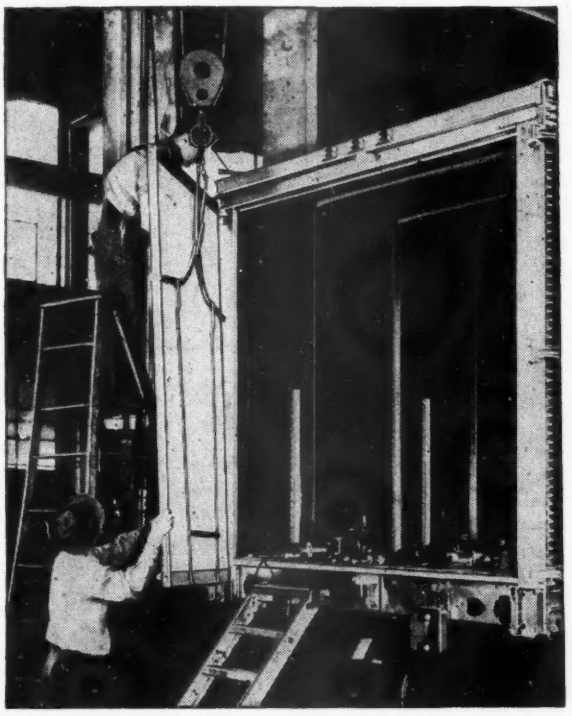
2180 Lee Road • • • • Cleveland 18, Ohio

**Easier and Safer TRUCK MANEUVERABILITY**

A self-contained unit of extremely simple construction, yet exceptionally effective and precise in operation. No buttons or levers are required to operate the **Air-O-Matic Power Steer**—it works automatically, helping only as the operator of the vehicle leads the steering wheel in either direction. It automatically stops helping when the operator stops leading the steering wheel. Details and technical information available on request. Valuable territory open in the South and West. Write or wire for full details.




# You get them ALL when you build lighter with U·S·S STAINLESS STEEL



Because it carries biggest payloads, costs least to maintain, stays longest in service, owners put their Stainless equipment in a class by itself as a paying investment.

• The bigger payloads that can be carried safely in trailers built of U·S·S Stainless—the longer life of such equipment and its remarkably low maintenance costs—are due to two basic properties of Stainless Steel: (1) high strength-weight ratio, and (2) superlative resistance to corrosion.

U·S·S Stainless Steel, cold rolled to induce high tensile properties, is 2½ times stronger than plain steel. Thus it can be used in very thin sections to effect almost unbelievable savings in weight, while at the same time actually increasing structural strength. And because Stainless construction is practically immune to the destructive action of weather, corrosion and time itself, the stamina of Stainless equipment is not affected through year after year of hard service.

That is why U·S·S Stainless Steel can be used—to eliminate *every* pound of useless weight—to build trucks and trailers that are hundreds of pounds lighter than ordinary lightweight construction. Such equipment which can carry hundreds of *extra* pounds of payload on every haul, also costs materially less to operate on every empty run. Maintenance and repair bills are low because U·S·S Stainless never needs painting, withstands wear, hard knocks and fatigue like no other metal.

## What is more you can *get* U·S·S Stainless Steel

In U·S·S Stainless Steel we can offer you for *almost immediate delivery* a perfected Stainless that has been service-tested in railroad cars, in buses, in trucks and trailers of all kinds. Plan to use it to improve your equipment. Our engineers who are specialists in the use of Stainless Steel will be glad to show you how to obtain optimum benefits at minimum cost.

USS STAINLESS STEEL — UNITED STATES STEEL

# U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

8-595

**UNITED STATES STEEL** AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago • COLUMBIA STEEL COMPANY, San Francisco
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UNITED STATES STEEL SUPPLY COMPANY, Warehouse Distributors—Coast to coast; UNITED STATES STEEL EXPORT COMPANY, New York

**YOURS for the asking**

**... this comprehensive report of Automotive Replacement Parts and their 1948 Prices.**

We present to the industry an analysis of present day interchangeability and questionable prices. Our investigation and research produced startling discoveries!

*It's a 20 page book grouping facts, figures and buying information that will help YOU increase your profits in the future!*

Compare Your Information! Send today for your free Copy

TO AID YOUR 1948 PLANNING USE THIS VALUABLE BOOK

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Don't give this BOOKLET
the brush off
IF YOU DO IT WILL COST YOU MONEY!
YOUR Life may not depend on the replacement parts you either sell or buy, but your business does!
"Washington Says"
KEEP PRICES DOWN!

20 Page Booklet FREE!

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**BUY DIRECT AND SAVE**

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**OIL FILTER ELEMENTS**

*for all Buses and Trucks*

We have Users in your City
Ask us Who—
And get our prices.

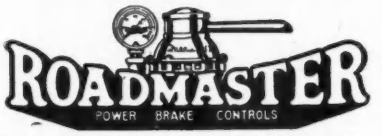
**REFILL FILTER CO.**

120 Rhode Island Ave., East Orange, N. J.



**SUPER POWER - SUPER SMOOTH SUPER FAST**

**Vacuum Power Brake Control**




**ROADMASTER PRODUCTS CO.**

2316 S. Flower St. Los Angeles, Cal.
Chestnut and Center Sts. Valparaiso, Ind.



**EXTRA PERFORMANCE with the PICKUP DUMP**

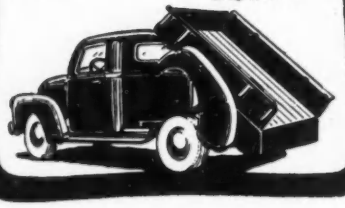
**DUMP-O-MATIC** for Pickups Automatic-Hydraulic

**DUMP-O-MATIC** for Pickups Cab-Controlled

**DUMP-O-MATIC** for Pickups Easily Operated

Standard pickups can be converted into Automatic, Hydraulic, Cab-controlled Pickup Dump Trucks with the DUMP-O-MATIC Conversion Kit. Fully automatic. Not hand pumped. Adaptable to ½-¾-1 ton pickups in nearly all makes. Also available is the National All-steel Body in ½-¾-1 ton sizes.

*National* TRUCK EQUIPMENT CO. Manufacturers Waukesha, Wisconsin Dept. C.C.




## CCJ Newscast

(CONTINUED FROM PAGE 388)

### AUTO-LITE PROMOTIONS

The promotion of 13 territory representatives to special representatives of the Merchandising Division of The Electric Auto-Lite Co. has been announced. D. W. Tuttle has been promoted to a district supervisor in the central division.

Those promoted include: James Lyon, R. W. Ball and J. W. Lingle, eastern division; F. C. Maley, F. C. Meehling and R. E. Kurtz, midwest division; R. J. Medcraft, R. H. Huntsicker and D. H. Hugger, central division; L. M. Melton, R. L. Jeffress and William Kitchens, southern division and W. G. Mitchell in the western division.

Also announced was the transfer of R. W. Higgins from the central to the eastern division as a district supervisor.

New Territory Representatives named are E. D. Pryor, eastern division; L. S. Jennings and J. O. Bessent, southern division and M. K. Zook, western division.

### WALKER SALES PROGRAM

The line of Ajax passenger car and truck jacks developed by Walker Manufacturing

(TURN TO PAGE 392, PLEASE)


*For Every* **METAL CLEANING** *Requirement*

★ Degreasing Machines & Safety Solvents
★ Metal Parts Washers
★ Alkali & Emulsion Cleaners
★ Strippers & Spray Booth Compounds

**DETREX** Corp.
DETROIT 32, MICHIGAN



**FOR ALL COMMERCIAL VEHICLES MOTOR CARS, TOO**

New — Better — Lower Cost Highway Safety Flares

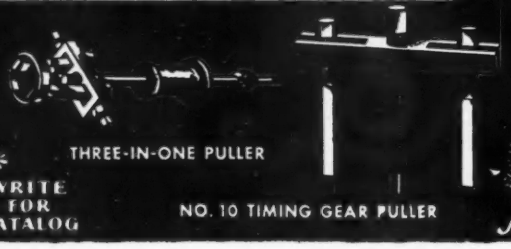
**VARI-FLARE**

VARI PRODUCTS CO.
2450 S. Prairie Ave., Chicago 16, Ill.



*Cal-Van* **GARAGE TOOLS**

2 and 3 FINGER TYPE



CARBON SCRAPER • LIGHT BULB PLIERS • RING COMPRESSORS • CREEPER CASTERS • BUSHING REMOVERS • REAMERS

GEAR PULLER

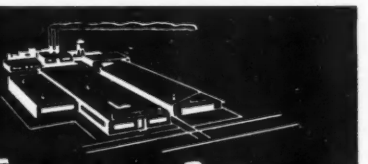
THREE-IN-ONE PULLER

WRITE FOR CATALOG

NO. 10 TIMING GEAR PULLER

*Cal-Van* MACHINE PRODUCTS INC. JACKSON, MICHIGAN U.S.A.





*ENGINEERED PARTS MADE IN WOHLERT'S OWN FACTORIES*

LANSING 5, MICHIGAN

**Wohlert** CORPORATION

# PERMALUX* Emphasizes the Difference Between *Price* and *Cost!*

**The price per decal you put on your trucks says nothing about performance—about how that decal will wear—and look—before re-painting, whether this be in four, five or more years.**

**We maintain the "in-between" stages are very important; for as the decalcomania decoration continues to look good — colors being kept in full brilliance, no chipping, cracking, peeling—the appearance of your equipment will certainly be more pleasing and the total decoration expense will be far less. That's why we continue to claim that quality can keep *end-cost* at a minimum.**

**Regardless of purchase price, PERMALUX *performance* gives you the lowest decoration cost!**

***Made with DuPont "Dulux"**

THE Permalux COMPANY

**Buy best, it's cheapest**

500 RATHBONE AVENUE . AURORA, ILL.

Accurate Always!

HARLEY C. LONEY CO.
DETROIT 21



STROMBOS AIR HORNS
for All Air Brake Equipped Vehicles

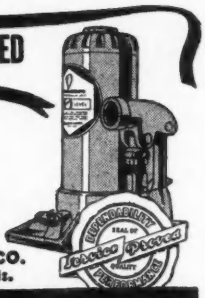
The Oldest and the Newest Air Horn on today's market. Unconditionally Guaranteed Life-time construction—all Brass and Bronze. Each kit complete—nothing else to buy. Economy model attractively priced.

*Write for Bulletin, prices, etc.*

STROMBOS COMPANY
4525 Twelfth St. - Detroit 8, Mich.



SERVICE-PROVED



YEARS of toughest service prove Blackhawk Hydraulics superior in safety, rugged dependability and utility. "Service-Proved" Seal found only on Blackhawks. Only complete line of hydraulic hand jacks—models up to 100 tons capacity.

BLACKHAWK MFG. CO.
Dept. J1148, Milwaukee, Wis.

BLACKHAWK


## CCJ Newscast

(CONTINUED FROM PAGE 390)

Co., Racine, Wis. is now being expanded to include a complete range of mechanical and hydraulic type jacks for passenger car, truck, bus and shop use. L. F. Carbonneau will handle the sales program of the Walker Ajax Division under the direction of Gordon R. Walker, vice president in charge of sales for the combined Walker-Ajax operations. Randall Snow has been appointed Ajax advertising and sales promotion manager.

### TENNESSEE SAFETY INSTITUTE

The Tennessee Safety Council organized at the closing session of the Governor's Highway Safety Conference recently, voted to establish a public safety institute for the purpose of training all city, county and state police recruits and administrative offices, and other safety personnel.

The school will be set up in one of the state's colleges in order that safety specialized training might be offered safety leaders. Courses will be offered prospective driver's license instructors, police recruits and administrative officers and teachers of safety courses in city and county schools.


KINNEAR Rolling Doors

On truck bodies *or* buildings, Kinnear Doors are efficient, dependable, economical. Steel-slat curtain coils upward, out of way. Any size; motor operation if desired. Write for details.

THE Kinnear Manufacturing Company
2100-20 Fields Avenue, Columbus 16, Ohio

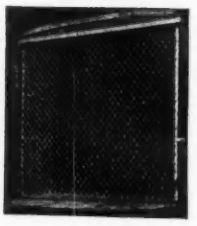
U.S. Pat. No. 2,093,547 — Canadian Pat. No. 223,568
INTERNATIONAL CHAIN & MFG. COMPANY
YORK, PENNSYLVANIA

The Wedler-Shuford Co.
St. Louis 3, Mo.



ZEHR

COLLAPSIBLE TRUCK BACKS



Safe . . . easy and simple to handle. Zehr Truck Backs are all-welded steel designed for great strength and long continuous service.

They are theft-proof, rust-proof and flexible.

Write for details and prices.

ZEHR PRODUCTS COMPANY
2130 East Hazzard Street, Philadelphia 25, Pa.



UNITS AVAILABLE

GRICO

2-AXLE DRIVE

19842 W. Eight Mile Rd.
Detroit 19, Michigan



Transport Cooler

is the modern Mechanical Refrigeration for transportation of Frozen Food - Meat - Produce and other perishables by Truck and Trailer.

*Write, wire or phone for information*

TRANSPORT COOLER, INC.
33300 THOMAS ST.
FARMINGTON, MICH. Phone 0765



CRACKED BLOCKS?

Save cracked BLOCKS and HEADS with ZO-TITE Blocksaver. Either in or out of chassis.

This new copperized powder treatment repairs cracks with a HARD, METALLIC, CHEMICAL-WELD. Once set, will last forever. Functions safely with anti-freeze. (Will not work on radiators)

Test it on a tough job. Write for free sample on your letterhead.

*Sold by jobbers.*

THE ZO-TITE PRODUCTS COMPANY
Dept. CC, Ozone Park 16, N. Y.



When the Motor is Down Build it Up with...

Allied MOTOR PARTS

NAPA

ALLIED MOTOR PARTS CO.
DETROIT 1, MICHIGAN



DAYTON Spoke Type Steel

WHEELS

AIR-COOL

BRAKE DRUMS AND TIRES

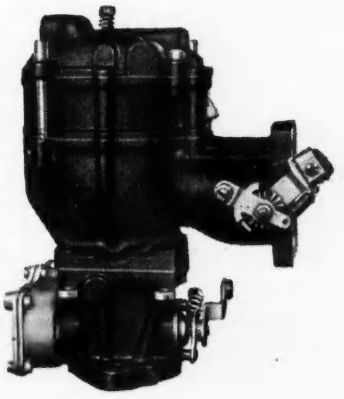
FOR TRUCKS, TRAILERS AND BUSES.
THE DAYTON STEEL FOUNDRY CO.
DAYTON, OHIO

# 1 mile or 100,000—ZENITH'S service record tops them all . . .

*Because* ZENITH HAS A CARBURETOR TAILORED TO EVERY HEAVY-DUTY NEED

On the road or in the shop there is never any question about Zenith's service record in heavy-duty carburetion. Thousands of owners' records, covering millions of miles, prove Zenith cuts carburetor service costs to the bone—keeps trucks rolling with peak engine efficiency mile after mile. When you specify Zenith* heavy-duty carburetion, you give yourself the proved benefits of thirty years of specialized skill and experience. Get all the facts from your Zenith distributor or write the factory direct.

*REG. U. S. PAT. OFF.

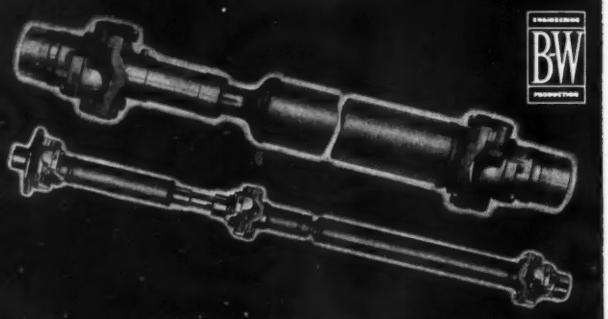


**ZENITH CARBURETOR** DIVISION OF

696 Hart Avenue • Detroit 14, Michigan

The Bendix AVIATION CORPORATION

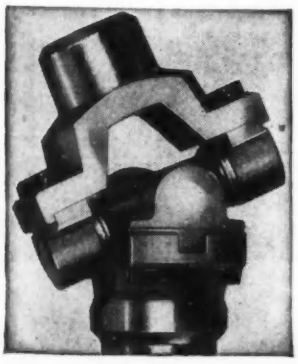
## REDUCE WHIP and RUNOUT in YOUR TRUCK PROPELLER SHAFTS — With



# MECHANICS
*Roller Bearing*
# UNIVERSAL JOINTS

For Cars · Trucks · Busses and Industrial Equipment

MECHANICS Roller Bearing UNIVERSAL JOINT brake flanges and fitting yokes are accurately machined all over or BALANCED, to reduce whip and runout to a minimum. The scientific design and accurate machining are distinct advantages over clumsy flanges that have large, unmachined surfaces. MECHANICS truck shafts also are BALANCED and factory tested to top operating speed, to insure smooth operation. The original alignment and balance are not disturbed by replacing MECHANICS cross-and bearing assemblies, because the bearings and pilots are accurately ground to insure absolute centering and perfect fit.



Our new catalog — showing the complete line of MECHANICS Roller Bearing UNIVERSAL JOINTS — will be sent to manufacturers upon request.

MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2034 Harrison Ave., Rockford, Ill.



# FREE
## Oakite Garage Manual

## Tells how you can expedite Maintenance, Repair and Overhaul

HERE'S a handbook of helpful hints for automotive mechanics that comes right out of the service shop. Its data is a record of successful, money-saving experience in hundreds of shops. No theory, just facts on basic degreasing and descaling procedures to help you speed such jobs as:

CLEANING carburetors, fuel pumps, chassis, axles before repair.

DESCALING cooling systems.

STRIPPING paint from truck, bus and car bodies.

WASHING bodies streak-free; walls and windows film-free.

STEAM-CLEANING of blocks; parts before repair.

Drop us a postcard NOW for your free copy.

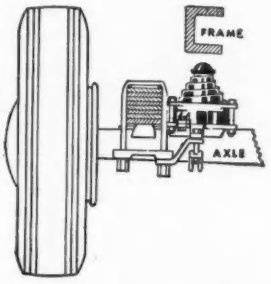
OAKITE PRODUCTS, INC., 16C Thames St., NEW YORK 6, N. Y
*Technical Representatives in Principal Cities of U. S. & Canada*

OAKITE
REG. U. S. PAT. OFF.

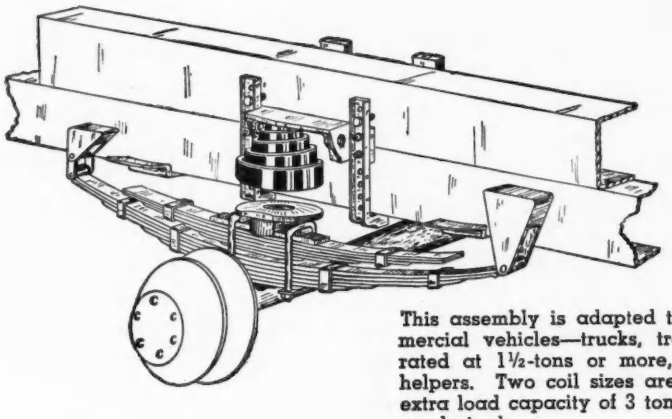
*Specialized Industrial Cleaning*
MATERIALS • METHODS • SERVICE

# ACCESSORY of the YEAR!

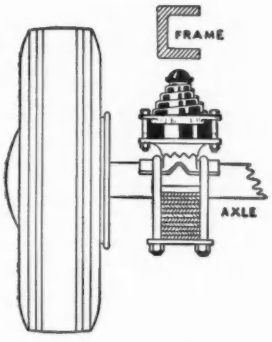
# BODY BUOYS




Applicable to various ¾ and 1-ton vehicles. Provides 2500 lbs. extra load capacity per pair.



This assembly is adapted to the rear of all commercial vehicles—trucks, tractors, trailers, etc.,—rated at 1½-tons or more, with or without leaf helpers. Two coil sizes are available, to provide extra load capacity of 3 tons or 4½ tons per pair, as desired.

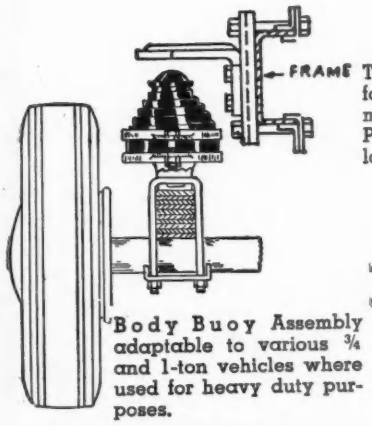



Specified on certain light commercial and passenger vehicles. Body Buoys are ideal for cars hauling house trailers.

**BODY BUOYS FLOAT THE EXTRA LOAD** with a unique cushioning action, but under normal load conditions they are inactive and out of the way. There's no burdensome extra weight on the chassis—for example; Assemblies for ½ ton trucks weigh 18 pounds or less—yet reserve "Payload" capacity is ample for every emergency.

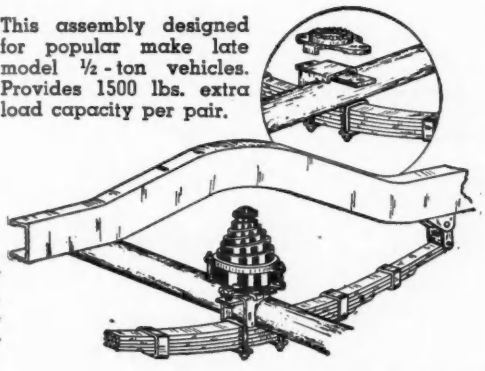
**BODY BUOYS ELIMINATE NEED FOR EXTRA LEAVES**—this means that Main Springs retain their natural resiliency and their consequent shock absorbing ability. Preserving this shock absorbing quality protects axle shafts, hubs, wheel bearings, ring and pinion gears—in fact, every vital chassis point, from the pounding punishment that results when extra leaves convert Main Springs—with the vehicle running light or even normally loaded—into unyielding bars of metal.

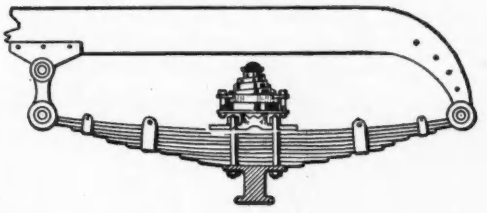
**BODY BUOYS CHECK SIDE SWAY**—When rounding corners as well as "listing" which results from top-heavy or uneven payloads—or crowned roads. The telescope-type springs—no gap between coils therefore no sideplay—actually cradle the load.
Installed without welding or bolting to vehicle frame.




Body Buoy Assembly adaptable to various ¾ and 1-ton vehicles where used for heavy duty purposes.

This assembly designed for popular make late model ½-ton vehicles. Provides 1500 lbs. extra load capacity per pair.





This assembly is specified for the front of various popular make vehicles rated at 1½-tons or more. Many operators of cab-over-engine and other jobs where the front end carries a reasonable share of the load, consider this equipment indispensable.

**Body Buoy Assemblies Available for All Commercial and Passenger Vehicles Built in the Last Ten Years**

**BODY BUOYS**
**Float the Overload**

Manufactured only by

## AUTOMOTIVE AIDS CORP.

Successor to Bordick Steel Products

**7721 W. Warren Ave. Detroit 10, Mich.**

**Dealers! The Body Buoy Franchise may still be available in your area**

**Write for Detailed Information**

# Here's why these DECALS can take it!

1. They're made with BONDED PIGMENTS that literally defy wear.
2. Special adhesives mean smooth, firm application.
3. They don't crack or craze.
4. Their brilliant colors are permanent.
5. They outlast the finish on the truck itself.

## The Palm Brothers *Decalcomania Co.*

*World's Largest Exclusive Manufacturer of Decalcomanias*

MAIL THIS COUPON

### *Brand New* FREE *Booklet*

THE PALM BROTHERS DECALCOMANIA CO.
Dept. 712
Cincinnati 12, Ohio

Please send me free, the brand new booklet, showing what decals can do for me.

*Name*_____

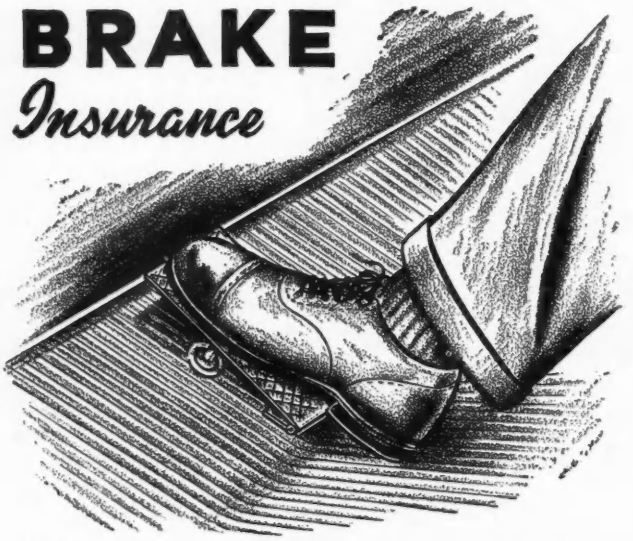
*Company*_____

*Address*_____

*City*_____ *State*_____

COPYRIGHT 1949, THE PALM BROTHERS DECALCOMANIA CO.

# This TRUCK has Automatic BRAKE *Insurance*



# MOIS-CHUR-MATIC

ASSEMBLY No. 12

## keeps air brake systems DRY!

Right . . . MOIS-CHUR-MATIC Assembly No. 12 automatically blasts out all water, oil and sludge that causes failures in air brake systems of busses and trucks. MOIS-CHUR-MATIC eliminates tank bleeding . . . does away with all traps and filters. In more and more busses, trucks, transportation systems the MOIS-CHUR-MATIC Discharge Valve insures top brake performance all year around.

### TWO YEAR ROAD TEST

Two years of actual road tests in every weather condition proved MOIS-CHUR-MATIC the sure, dependable way to keep air brakes clean and moisture free. Easy to install, protects the entire air system. MOIS-CHUR-MATIC cuts maintenance costs . . . eliminates bleeding . . . keeps brake systems free of oil, sludge and water the year round. Write for specifications today, or:

## Ask Your Air Brake Jobber

FOR . . .

**MOIS-CHUR-MATIC**

ASSEMBLY No. 12

*(Automatic Discharge Valve)*

**PNEUMATIC CONTROLS CORPORATION**

**DES MOINES, IOWA**

# REFLECTORIZE
## your equipment . . .

# with PRISMO

*It's Easy*—simply use ordinary paint spray equipment

*It's Economical*—less than seven cents per square foot

*It's Durable*—users report five to seven years reflective life outdoors

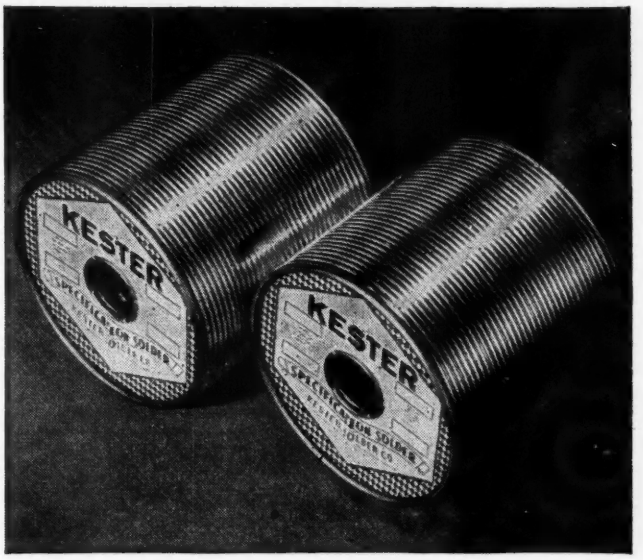
*It's Cleanable*—use ordinary cleansing methods

*It's Effective*—Visible at night hundreds of feet ahead

**WRITE for BULLETINS:**
547—"1001 NIGHTS with PRISMO"
7471—"REFLECTORIZE YOUR EQUIPMENT with PRISMO"

The SPHERE of SAFETY

PRISMO SAFETY CORP.
EQUIPMENT DIVISION
HUNTINGDON, PENNSYLVANIA

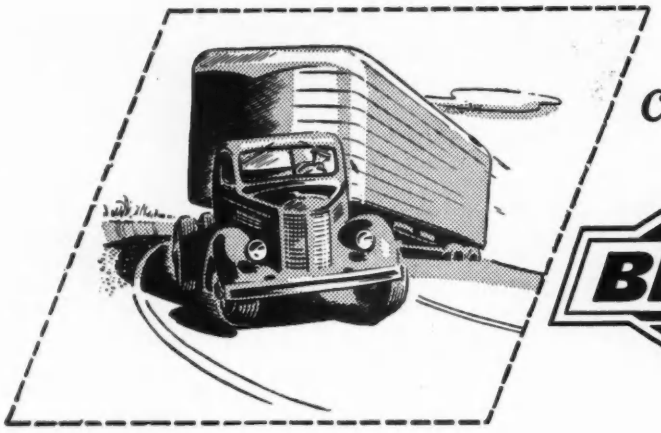



# Uniform in Looks but ONE is best for You!

**All solders look alike but many will vary widely in performance. Standardize on Kester Cored solders with their pure, uniform and dependable flux cores and be sure of outstanding work.**

**Use Kester acid core solder for general work; Kester rosin core solder for all electrical work.**

**KESTER SOLDER COMPANY**
4205 Wrightwood Ave., Chicago 39, Illinois
Factories Also At
Newark, New Jersey - Brantford, Canada



*cut your cpm* with*

**BLUE STREAK**

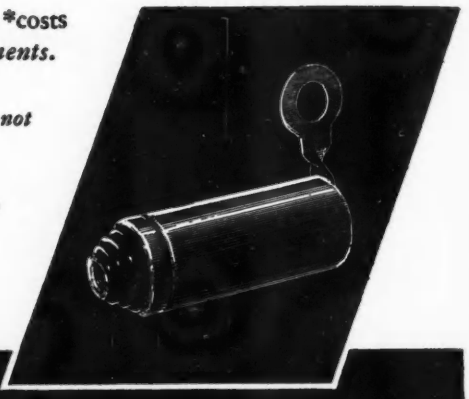
*condensers*

*Everything about the Blue Streak Super Condenser helps cut your* *costs per mile — *saves you money on down time, repairs and replacements.*

**THOUSANDS MORE MILES OF SERVICE:**
*Fleet owners who use the Blue Streak Super Condenser report — not miles, not hundreds of miles, but thousands more miles of unfailing service.*

**INDIVIDUAL INSPECTION:**
*Like all Blue Streak parts, Super Condensers are individually inspected. Every single one undergoes stiff Breakdown and Leakage tests to make certain it's Blue Streak grade.*

**call your jobber; it pays to go Blue Streak for all your starting, lighting and ignition work**



**STANDARD MOTOR PRODUCTS, INC.**
37-18 Northern Blvd., Long Island City 1, New York

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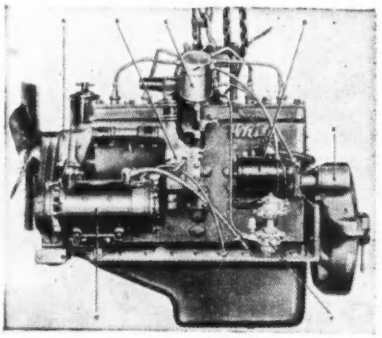
*Attention!*

## WHITE TRUCK OWNERS

**Limited Quantity Super Power White Motors**
**Model 160 AX—Like New.**



These motors are perfect and are now being removed from Army half tracks with very low mileage.

**FLEET OWNERS!**
Buy one or two of these as spares. Costs less than an over-haul job.

**Price (minus transmission) $275.00 each.**
**F. O. B. Anniston, Alabama**

**SOUTHERN SCRAP MATERIAL COMPANY, LTD.**
**4163 Bienville Street, New Orleans, La.**
**Telephone: AUdubon 3761**

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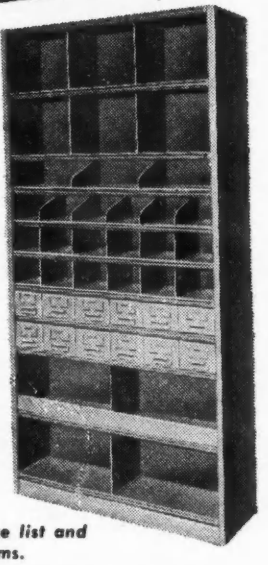
## NOW! AUTOMOTIVE PARTS BINS TO YOUR SPECIFICATIONS AT NO EXTRA COST!



Order your Parts Bins the new QUICK, EASY STANSTEEL WAY . . . custom-designed for your own particular needs..

Basic Units, 87" high, 36" wide, 12" deep, are constructed of heavy-duty steel with tough, baked-on, olive-green enamel finish. They accommodate 19 different kinds of component parts in thousands of variations and combinations.

You save money on every unit and on every part at our low, direct-from-factory prices!

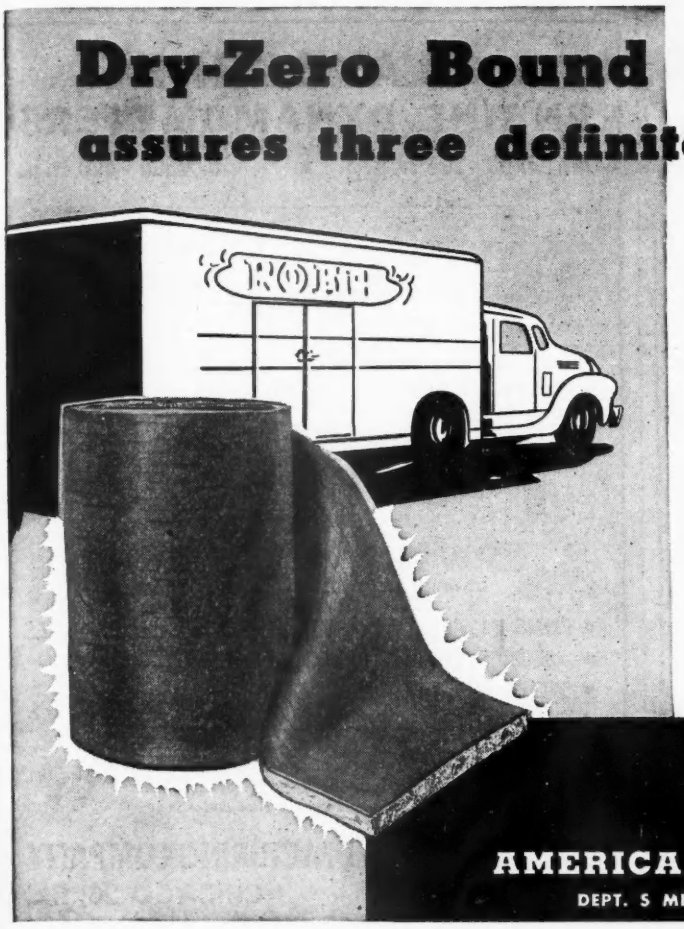
**IMMEDIATE DELIVERY!**
**Low Manufacturer's Prices**

*Send today for complete details, price list and easy-to-use specification forms.*

**Standard Steel Equipment Co., inc.**
MANUFACTURERS OF
***Steel Shelving, Cabinets and Lockers***
**Dept. CJ, 117-20 14th Road, College Point, L. I., N. Y.**

# Dry-Zero Bound Batt Insulation

## assures three definite advantages



**1—MOISTURE REPELLENCE**
**2—HIGH EFFICIENCY**
**3—LONG LIFE**

Nature made Dry-Zero Insulation water-repellent. The long fibres have a natural wax-like coating that makes them non-hygroscopic. Moisture condensing on Dry-Zero rolls off and drains away. Hence, it maintains its heat-stopping ability for the life of one refrigerated truck body after another.

Dry-Zero Insulation has high heat-stopping efficiency ("k" factor of 0.24). It is extremely light too — weighing less than 1 lb. per cu. ft. Properly installed, it will not pack, settle, rot, or absorb odors. Dry-Zero Insulation is also easy to install and is non-irritating to the skin of workers.

*Write for Bulletin S-84*

**DRY-ZERO**
**DIVISION**
**AMERICAN HAIR & FELT COMPANY**
DEPT. S MERCHANDISE MART CHICAGO 54, ILLINOIS

# WANT the BEST in FOUNTAIN BRUSHES?

No. 650BM $12.75

No. 650H $7.95

**Bus Wash**

This round type brush has cast aluminum head 5" in diameter, with 4' hollow seamless steel handle equipped with brass fittings. No. 650BM has imported pig bristles which flare to 8".

No. 650H is the same brush furnished with horsehair bristles.

***THEN LOOK for these FEATURES***

Cast Aluminum Head
Imported Pig Bristles
Hollow Steel Handle
Brass Fittings
Replaceable Brush
Constant Flow of Water

***"Auto Wash"*** for passenger cars and light trucks — 8½" handle, 3½" round head, $3.95.

***Our New Catalog Sheet Sent on Request.***

No. 366 $14.75

**Fleet-Wash**

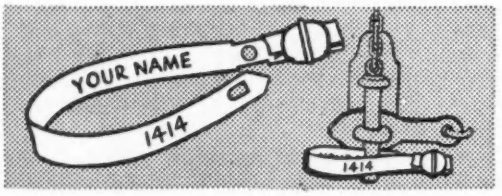
This is an oblong type brush with a cast aluminum head 2⅞" wide by 10" long. The imported pig bristles 3¼" long, flare to a 12" cleaning surface. The 4' handle is hollow, seamless steel equipped with brass fittings.

***If Your Jobber Cannot Supply You, Write Direct Giving Name of Jobber.***

**FLOUR CITY BRUSH CO. MINNESOTA 15, MINNESOTA**
**PACIFIC COAST BRUSH CO. LOS ANGELES 21, CALIFORNIA**

## THE CASE of the BAFFLED TRUCKING EXECUTIVE!

This trucking executive can't get the Security Seal off his desk drawer. He sent for a free sample and tried it on his desk . . . and now he knows the absolute effectiveness of Security Self-Locking Truck Seals against load thieves.




**Security SELF-LOCKING TRUCK SEALS**

Your freight protection begins as soon as your truck is loaded and sealed with Security Self-Locking Truck Seals that slip on without the need of press or sealing iron. There are no keys . . . no combinations. Once it's on, it cannot be removed from your truck door unless destroyed . . . and for added safety, each seal bears your firm name and consecutive number.

This foolproof protection is yours for only a fraction of a cent per load!

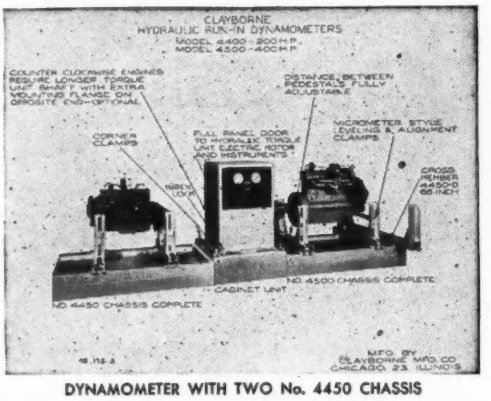
Security Seals are U. S. Government Standard . . . used on 90% of all railroad mileage!

SEND FOR FREE SAMPLES AND PRICES

**SECURITY SEAL CO.** 144 W. 27th St., N. Y. 1, N. Y.

## CLAYBORNE ENGINE DYNAMOMETERS

**No. 4400 - 200 h.p. • No. 4500 - 400 h.p.**


CLAYBORNE
HYDRAULIC RUN-IN DYNAMOMETERS
MODEL 4400 - 200 H.P.
MODEL 4500 - 400 H.P.
COUNTER CLOCKWISE ENGINES REQUIRE LONGER TORQUE UNIT SHAFT WITH EXTRA MOUNTING FLANGE ON OPPOSITE END—OPTIONAL
DISTANCE BETWEEN PEDESTALS FULLY ADJUSTABLE
MICROMETER STYLE LEVELING & ALIGNMENT CLAMPS
CORNER CLAMPS
FULL PANEL DOOR TO HYDRAULIC TORQUE UNIT ELECTRIC MOTOR AND INSTRUMENTS
CROSS MEMBER #4500 60 INCH
NO 4450 CHASSIS COMPLETE
CABINET UNIT
NO 4500 CHASSIS COMPLETE
MFG. BY CLAYBORNE MFG. CO. CHICAGO 23 ILLINOIS

DYNAMOMETER WITH TWO No. 4450 CHASSIS

- RUNS-IN AND COMPLETELY TESTS ALL ENGINES
- ASSURES ENGINE PERFORMANCE
- STOPS COSTLY COMEBACKS
- GUARANTEES USER SATISFACTION

*The cycle includes important pre-lubrication run followed by periods of idling under own power and of power runs under loads*

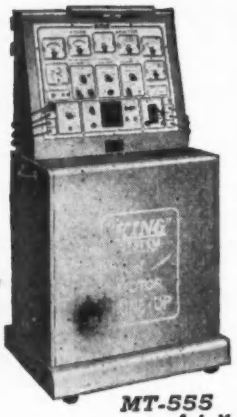
**CLAYBORNE MANUFACTURING COMPANY**

3234 WEST 31st STREET CHICAGO 23, ILL.

*Find out about the . .*

## "KING" System of MOTOR Tune-up

## . . and HOW MUCH YOUR MONEY WILL BUY



*MT-555*

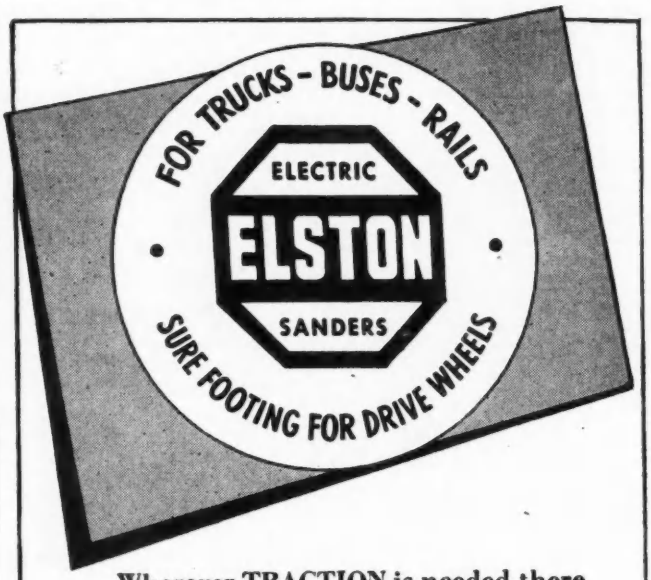
We all want to get the most we can for the money. From what our customers tell us we are convinced that the "KING" System of Motor Tune-up is a wonderful buy. Back of the "KING" System are many years of experience. Many of the basic features in motor tune-up were developed by "KING" Engineers. The "KING" System enables you to give better service and make more money. It will pay to investigate. Training service supplied by our field representatives. Official service stations in strategic cities.

*Ask Your Jobber or Write Us*

**The ELECTRIC HEAT CONTROL Co.**

9127 INMAN AVENUE • CLEVELAND 5, OHIO

GOOD "KING" PRODUCTS SINCE 1914




**Wherever TRACTION is needed there is need for Elston Electric Sanders. Whenever weather conditions reduce Traction to a minimum you can conveniently provide your own with the sanders that are approved by the Underwriters' Laboratories.**

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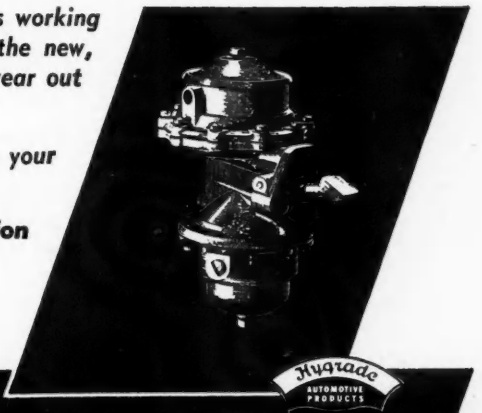
***The new diaphragm is fully guaranteed against distortion and corrosion in normal use. Put one on test.***

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FUEL PUMP KITS AND PARTS
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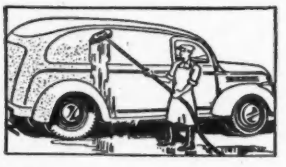

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*Brush Manufacturers Since 1855*

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COMPLETE AS SHOWN

WRITE *for* Bulletin 331

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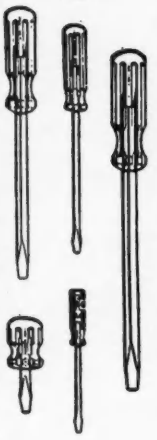
# SAFETY *has been added to* SERVICE *in the New* VACO *line*



• Men who know fine tools appreciate the perfect balance, superior performance and years of *extra* service built into every Vaco screw driver. Shock-proof, break-proof Amberyl handles and electrically heat-treated chrome vanadium bits assure long life and low overall cost.

Now *safety* has been added to durability. The new Vaco Amberyl handles are *slo-burning* . . . the only handles of their kind carrying the Underwriters' Laboratories, Inc. Reexamination Service Marker.

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VACO PRODUCTS CO.

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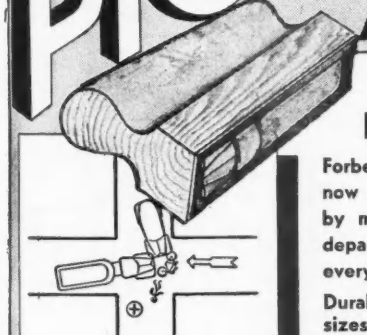

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## Adjustable THERMOSTATS

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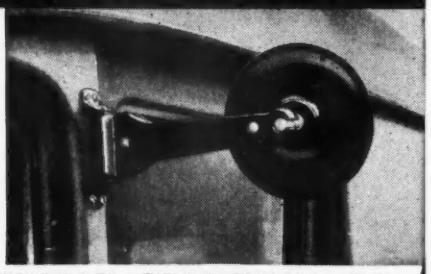
**—CLEAR REAR VISION**



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Range up to 250 lbs. PRICE $55

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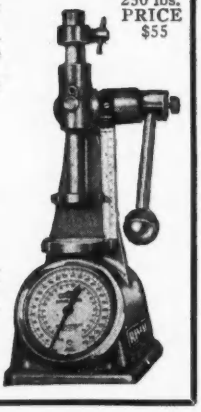
**SPRING TESTER**
*For VALVE and CLUTCH SPRINGS*



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**Tandem TRAILERS**
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# HART

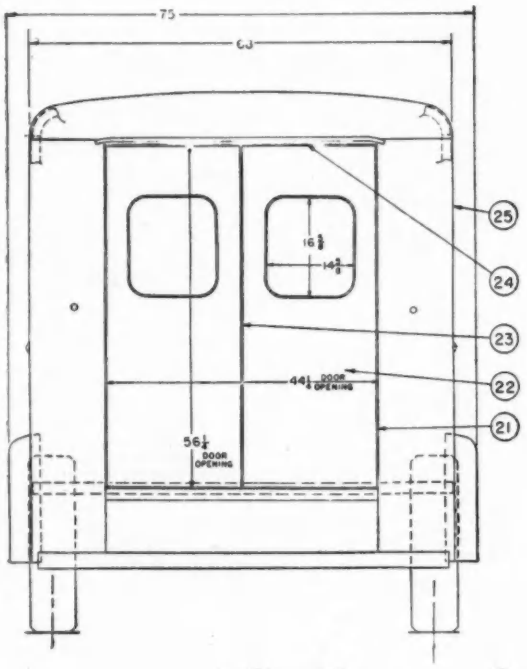
# STANDARD BODY PARTS THROUGHOUT!

The variety of standard body parts offered by Hart Pressed Steel Corp. enables you to build to any design! Parts for this new Full View Single Unit are designed to be competitive for the body builder and more economical for the fleet owner. Gain uniformity of style regardless of where built! Get immediate delivery of replacement parts for quick repair.

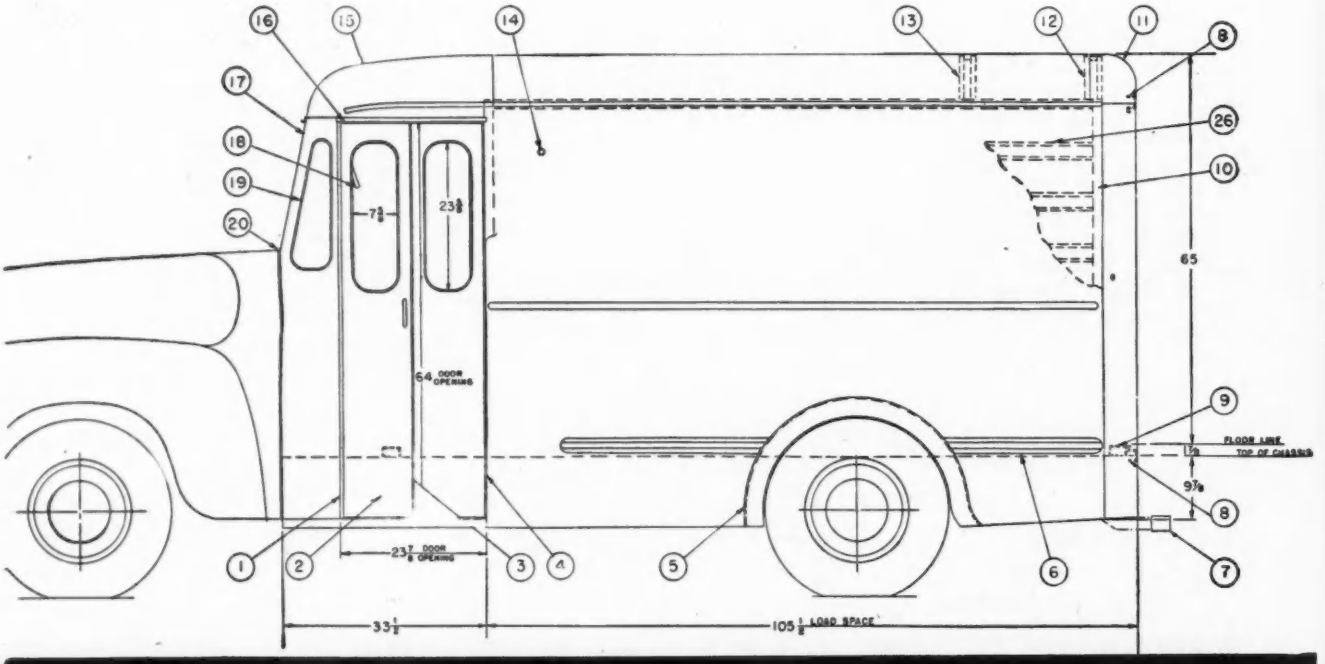
**PARTS SHIPPED FROM STOCK**

**SUGGESTED LAYOUT FOR A 68" WIDE BODY**

Parts are also available for bodies 72" and 75" wide. Certain parts are not standard for all makes of chassis. When ordering parts specify make of chassis. Prices furnished on request.




| ITEM | PART NO. | REQ. | DESCRIPTION | |
|---|---|---|---|---|
| 28 | 3510 | 1 | BUCKET SEAT PEDESTAL | |
| 27 | 3509 | 1 | BUCKET SEAT | |
| 26 | LS-601 | 9 | LINER SLAT | 144 LG. |
| 25 | 1732 | 2 | REAR QUARTER PANEL | |
| 24 | 3521 | 216" | REAR DOOR SEAL | |
| 23 | 3528 | 60" | REAR DOOR LAP SEAL | |
| 22 | 3523 | 1 PR. | REAR DOORS | |
| 21 | 3518 | 2 | REAR DOOR MTG. HINGE | |
| 20 | 3503 | 1 | COWL SEAL RUBBER | 120 LG. |
| 19 | 3504 | 4 | WINDOW SEAL RUBBER | 144 LG. |
| 18 | 3502 | 1 PR. | DOOR OPERATING MECHANISM | |
| 17 | W-1501 | 1 | WINDSHIELD COWL | |
| 16 | 1717 | 1 PR. | DOOR GUIDE | |
| 15 | C-1601 | 1 | WINDSHIELD CAP | |
| 14 | 3533 | 4 | RUBBER DOOR BUMPER | |
| 13 | 1003-68 | 4 | ROOF BOW | |
| 12 | 1003-R68 | 2 | ROOF BOW REINFORCED | |
| 11 | 568 | 1 | REAR ROOF CAP | |
| 10 | 3505 | 8 | TUBULAR POST | 204 LG. |
| 9 | CS-1115-80 | 7 | LOW CROSS SILL | 80 LG. |
| 8 | 1720 | 2 | DOOR FRAMING (TOP & BOTTOM) | |
| 7 | 3540 | 1 | REAR BUMPER | |
| 6 | RR-1109 | 1 | RUB RAIL | 144 LG |
| 5 | 3534 | 1 SET | REAR FENDERS (MAKES 2) | |
| 4 | 3519 | 2 | SIDE DOOR MOUNTING HINGE | |
| 3 | 3520 | 2 | FOLDING HINGE | |
| 2 | 3522 | 1 SET | FOLDING DOORS (4 DOORS) | |
| 1 | 3501 | 2 | DOOR SEAL | |

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**ELKHART — *THE COMPLETE TRUCK BODY SERVICE* — INDIANA**

# Willard

**Dependability and Performance Mean**

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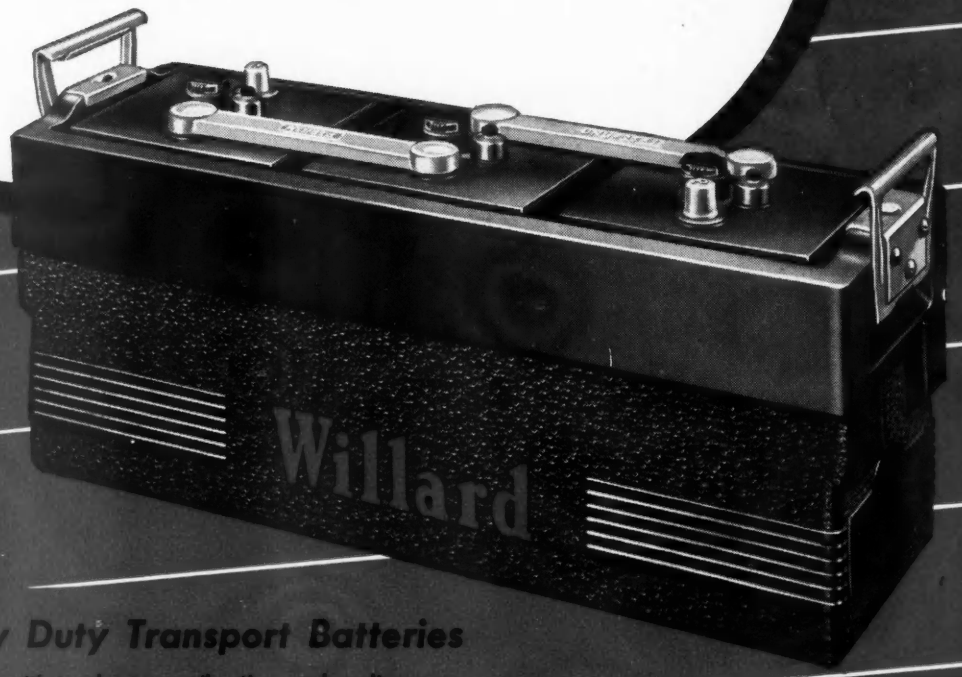
## LOW COST PER MILE

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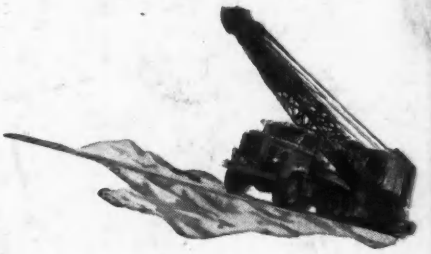

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